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AN APPRAISAL OF ANTIRACHITICS IN TERMS OF RAT AND CLINICAL UNITS

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AND
J. M. LEWIS, M.D.
NEW YORK

It has become increasingly evident that there are now available a considerable number of valuable, indeed almost specific, agents for the prevention of rickets. This fact needs no additional confirmation except in detail. There are, in all, five reliable and well established antirachitics, each one of which represents a distinct and different pharmacologic point of view. The first to be established was cod liver oil, a natural product; the second to be introduced was direct irradiation of the body by means of ultraviolet energy; the third was irradiated food, particularly milk, activated by exposure to ultraviolet radiations; the fourth, an irradiated basic substance, ergosterol, extracted from yeast; the fifth, representing still another method, was "yeast milk," a biologic product endowed with antirachitic potency as the result of feeding irradiated yeast to the cow. In addition to these five established agents there are numerous others which consist of various modifications or combinations; for example, the addition of a concentrate of cod liver oil to milk, or of viosterol to cod liver oil. Whether one or the other of these several antirachitics should be adopted in the campaign to eradicate rickets from the community will depend not so much on their efficacy in preventing rickets as on their availability, which involves their cost to the consumer, the readiness with which they are accepted by the public, their palatability and other nonmedical considerations.

It is now eight years since it was demonstrated that milk can be rendered highly antirachitic by a short exposure to ultraviolet radiations.[1] The method has been remarkably slow of adoption in this country, owing largely to the necessary delay incidental to evolving a satisfactory technic. For some years a commercial preparation of dry milk has been activated in this way, but this winter for the first time irradiated fluid milk was marketed on a large scale in one of the large cities (Detroit). For the past two winters clinical tests have been carried out in the clinics of the department of health of New York City and it was established unequivocally that irradiated milk is able to prevent rickets, indeed even in the Negro infant.[2] In regard to the latest addition to the fold, "yeast milk," clinical experience in New York [3] and in Boston [4] has established the reliability of this interesting method of elaborating a specific food.

Some three years ago it was shown that the assumption that the potency of one antirachitic can be expressed interchangeably in terms of another does not accord with clinical experience.[5] For example, many more "rat units" of viosterol than of cod liver oil were found necessary to protect or to cure infants. On the basis of standard bio-assays they were by no means interchangeable. In the following year it was shown that a similar inconsistency held true in regard to other antirachitic agents and that irradiated milk required a surprisingly small number of rat units, as few as from 35 to 40 being sufficient to protect infants, as judged by the clinical observations of a large series of cases. Recently, Stokes and his colleagues [6] have come to a similar conclusion.

These observations as to the lack of conformity in the clinic of various antirachitic agents gain additional support from experiments on rickets in animals. Some years ago it was shown that, in order to protect chickens from leg weakness, it was necessary to give them a far larger number of antirachitic units in the form of irradiated ergosterol than of cod liver oil.[7] Massengale and Nussmeier [8] came to the conclusion that 100 or even 200 times as much of the former might be required. Two years ago, in the course of an experiment devised to ascertain whether it was preferable to feed cows irradiated ergosterol or irradiated yeast in order to render their milk highly antirachitic, it was found that three times as many units of the former had to be incorporated in the daily ration in order to produce a milk containing 160 rat units to the quart; 30,000 rat units of irradiated yeast was equivalent to approximately 100,000 units of irradiated ergosterol and 60,000 to 200,000 units.[3] These conclusions

1. Hess, A. F. and Weinstock, Mildred: A Further Report on Imparting Antirachitic Properties to Inert Substances by Ultraviolet Irradiation, J. Biol. Chem. **63**: 297 (March) 1925.

2. Supplee, G. C.; Dorcas, M. J., and Hess, A. F.: Irradiated Milk: The Energy Requirements for Antirachitic Activation, J. Biol. Chem. **94**: 749 (Jan.) 1932. Hess, A. F., and Lewis, J. M.: Milk Irradiated by the Carbon Arc Lamp, J. A. M. A. **99**: 647 (Aug. 20) 1932.

3. Hess, A. F.; Lewis, J. M.; MacLeod, F. L., and Thomas, B. H.: Antirachitic Potency of the Milk of Cows Fed Irradiated Yeast or Ergosterol, J. A. M. A. **97**: 370 (Aug. 8) 1931.

4. Wyman, E. T., and Butler, A. M.: Antirachitic Value of Milk from Cows Fed Irradiated Yeast, Am. J. Dis. Child. **43**: 1509 (June) 1932.

5. Hess, A. F.; Lewis, J. M., and Rivkin, Helen: Newer Aspects of the Therapeutics of Viosterol (Irradiated Ergosterol), J. A. M. A. **94**: 1885 (June 14) 1930.

6. Mitchell, J. M.; Eiman, John; Whipple, D. V., and Stokes, Joseph: Protective Value for Infants of Various Types of Vitamin D Fortified Milks, Am. J. Pub. Health **22**: 1220 (Dec.) 1932.

7. Hess, A. F.; Supplee, G. C.; Dow, O. D.; Flanigan, G. E., and Kahlenberg, O. J.: The Action of Irradiated Ergosterol on Rats and Chickens, Proc. Soc. Exper. Biol. & Med. **27**: 609-610 (March) 1930.

8. Massengale, O. N., and Nussmeier, Mildred: The Action of Ergosterol in the Chicken: II. The Prevention of Leg Weakness, J. Biol. Chem. **87**: 423 (June) 1930.

are similar to those of Krauss and his colleagues,[9] who found that the vitamin D in cod liver oil is more efficacious for calcification of the bones of chicks than that contained in the butter-fat from cows fed irradiated ergosterol.

The problem in regard to the various antirachitics is therefore not so much one of efficacy as of ascertaining the number of units required of each preparation in order to prevent or to cure infantile rickets. This question is fraught necessarily with interesting theoretical and practical implications. In the first place, it implies that the established method of gaging the value and potency of antirachitics is not only unreliable but misleading as well. To state that an antirachitic preparation contains 50 units might indicate, in the one instance, that it possesses adequate antirachitic protective power, or, in the other, that it is wholly inadequate and that the therapeutic dose should be increased many fold. From a laboratory point of view such discrepancies in the clinical value of various antirachitics implied that the regulations for measuring potency would have to be revised and that the newer "international units" could be accepted only with definite reservations. For example, although it would be quite in order to compare a sample of cod liver oil with the "reference" cod liver oil and of viosterol with the standard irradiated ergosterol, it would be highly misleading, from a therapeutic point of view, to compare the number of units of viosterol with that in cod liver oil. In view of the importance and timeliness of this problem it was decided to carry out another clinical investigation, introducing certain modifications.

In the first place, although we are interested in these therapeutic agents mainly from the point of view of the prevention of rickets, it was deemed advisable to carry out a curative rather than a protective clinical assay. Several considerations led us to take this point of view. In the first place it enabled the use of an objective clinical criterion, the roentgenologic picture, rather than a set of subjective criteria. A study based on roentgenologic healing of the epiphyses is necessarily more convincing than one based on mere prevention. This is all the more true of rickets, as there are marked inherent difficulties associated with the interpretation of its subjective signs, for example, of beading of the ribs, which is at times difficult to interpret. Again, craniotabes, the softening of parietal areas of the cranial vault, cannot be regularly prevented by any of the antirachitic agents even when given in the full therapeutic dose. Such has been our experience and, we believe, the experience of other clinicians; it may even diminish simultaneously with the development of roentgenologic lesions or make its appearance while the epiphyses are showing evidences of healing. Nor can one rely on the concentration of the inorganic phosphorus of the blood in judging whether or not the antirachitic agent has conferred protection. As pointed out from time to time, the inorganic phosphorus may remain at the normal level, especially in infants under 3 or 4 months of age, in spite of the fact that rachitic changes become evident in the epiphyses. In order, therefore, to remove uncertainties it was decided to carry out a curative test of a series of antirachitics and to make roentgenologic healing the criterion of potency. This decision was made with the realization that roentgenologic rickets represents a moderate rather than a mild stage of the disorder.

In regard to irradiated milk, the same procedure was followed both as to potency and as to method of elaboration. It was activated by means of carbon arcs, great care being exercised to provide uniformity in the amount and character of applied energy. The apparatus delivered over 5,000 quarts an hour and the milk was subjected to the rays for a period of sixteen seconds ("flash irradiation"). It was found that milk treated in this manner contained from 50 to 60 rat units per quart and that the unitage was remarkably constant. In the accompanying table, milk of this kind is rated at 56 units per quart or 42 units for 24 ounces, the amount which was fed daily in most cases to each infant. In some cases it will be noted that only 16 ounces a day was given; in other words, 28 rather than 42 rat units. A change was made in regard to the strength of the yeast milk; in our last investigation this milk contained 160 rat units per quart and was found to confer protection or to bring about healing in every instance. The milk that was used in the present test contained fewer units, as it was felt that 160 units was unnecessarily high. The potency of yeast milk can be regulated to a surprising degree by varying the number of rat units of activated yeast which is fed to the cow. Accordingly, cows were segregated into two groups and irradiated yeast was fed to

Healing Brought About by the Minimal Curative Dose of Various Antirachitic Agents

Case	Age, Mos.	Date Begun	Dose	No. of Rat Units Given	Roentgenologic Rickets: At Onset	Roentgenologic Rickets: Healing After 4 Weeks	Comment
Irradiated Milk, 56 Rat Units per Liter							
D. C.	9	3/ 3	24 oz.	42	Marked	+++	Negro
A. O.	4	2/12	24 oz.	42	Slight	+	Puerto Rican
C. W.	13	2/17	24 oz.	42	Marked	++±	Slight healing at onset; Negro
J. B.	17	3/17	24 oz.	42	Marked	++*	Negro
J. B.	6	3/ 3	16 oz.	28	Marked	?	Osteoporosis; Negro
R. H.	9	2/24	16 oz.	28	Slight	++	Negro
P. B.	9	2/24	16 oz.	28	Moderate	+±	Osteoporosis
W. S.	4	2/27	16 oz.	28	Slight	+±	
L. S.	2½	2/27	16 oz.	28	Slight	+	
S. N.	3	2/27	16 oz.	28	Slight	+	
"Yeast Milk," 120 Rat Units per Liter							
J. M.	8	3/ 1	24 oz.	90	Moderate	++±	Slight healing at onset; Negro
H. H.	6	2/ 7	24 oz.	90	Moderate	++	Puerto Rican
S. G.	4	2/ 7	24 oz.	90	Slight to moderate	+	Puerto Rican
P. T.	6	2/ 1	24 oz.	90	Slight to moderate	+	Puerto Rican
S. S.	5	2/ 1	24 oz.	90	Moderate	+±	Puerto Rican
"Yeast Milk," 80 Rat Units per Liter							
H. H.	11	3/ 2	24 oz.	60	Moderate	++	Negro
S. L.	6	2/ 8	24 oz.	60	Slight to moderate	+	Negro
D. L.	5	2/ 1	24 oz.	60	Slight	+±	Puerto Rican
A. C.	5	2/ 2	24 oz.	60	Moderate	++	Puerto Rican
V. G.	6	3/18	24 oz.	60	Slight	0	Healing at 6 weeks
Viosterol, 80 Rat Units per Drop							
T. G.	6	3/ 3	4 drops†	320	Moderate	+±	Puerto Rican
H. P.	12	3/ 3	4 drops	320	Slight to moderate	++	Negro
M. R.	6	3/10	4 drops	320	Slight	+	
H. B.	6	3/ 3	4 drops	320	Very marked	0	Negro; osteoporosis
C. R.	5	3/ 3	4 drops	320	Moderate	?	Puerto Rican twin
A. S.	2	3/10	4 drops	320	Slight	?	Twin
A. E.	2½	3/ 2	4 drops	320	Slight	?	
A. S.	2½	3/ 2	4 drops	320	Slight	+	

* Milk given for only twenty-four days.
† 40 drops per cubic centimeter.

9. Krauss, W. E.; Bethke, R. M., and Monroe, C. F.: The Effect of Feeding Irradiated Ergosterol to Cows on the Vitamin D Content of Milk, J. Nutrition 5: 467 (Sept.) 1932.

the one in an amount sufficient to yield about 120 rat units per quart and to the other in an amount to yield only 80 rat units per quart. Repeated assays proved that this milk developed approximately the potencies that had been calculated; the more potent milk varied merely from 110 to 120 rat units and the weaker from 75 to 80 units. It was likewise found possible in this test to feed smaller quantities of yeast to the cows, as a preparation of brewers' yeast was available which contained 70 D units per gram instead of only 25 to 30 D units, which was the most potent preparation fed two years ago. Babies were given 24 ounces daily of these two strengths of yeast milk, so that one group received approximately 90 and the other 60 rat units a day. The cod liver oil contained from 37 to 40 rat units per gram, making it a 3 D preparation. On the basis of 4 cc. (3.2 Gm.) to the teaspoonful, the children getting this amount received about 130 rat units daily and those who were given one-half teaspoonful, about 65 rat units. A preparation of viosterol was used having a potency of about 80 rat units to the drop (250 D), calculating 40 drops to a cubic centimeter. Four drops were given daily; in other words, the infants received about 320 rat units daily. All antirachitic agents were assayed not only by the laboratory in which they had been prepared but by one or more other laboratories, in order that there should be no question as to the potency of the product. This procedure was considered especially desirable in view of the fact that the question has been raised not only as to whether biologic tests can be relied on but as to whether preparations that have been used for clinical studies contained a far greater or less number of rat units than was supposed. In our previous experiments, assays were not carried out on the identical preparation that was given the infants. Another improvement or refinement in technic was introduced. In every case the roentgenologic observation as to healing was made after a period of four weeks, so that the therapeutic tests were comparable in this respect. In similar studies the time factor has not been rigidly observed, the infants having been under observation for longer or shorter periods. As we know that when assaying antirachitic agents it is imperative to set a fixed limit to the test period, it was deemed highly desirable to observe a similar procedure in the clinic. Most of the infants attended clinics of the New York department of health and we are indebted to the commissioner for his cooperation in connection with this study. The babies were not only carefully examined in the clinic but followed up by a nurse in the home to make certain that instructions were carried out.

Surveying the results, which are abstracted in the accompanying table, one finds that they conform remarkably well with our clinical experiences of the past few years in which the preventive rather than the curative method was employed. A survey of the column which reproduces the degrees of healing will show that the series fed the larger amount of irradiated milk and the higher potency of yeast milk fall into a group in which the results were outstanding. This irradiated milk contained approximately 56 rat units to the quart or 42 units to the daily quota of 24 ounces, and the yeast milk 120 units to the quart, or 90 to the 24 ounce quota. The "efficacy ratio" of the one milk to the other was almost two to one, the irradiated milk requiring about half as many units to bring about similar degrees of healing. The next best group is composed of irradiated milk given in only 16 ounce amounts daily, of yeast milk of 80 instead of 120 unit potency. From the standpoint of unitage, the least potent of all was viosterol, which assayed at about 80 rat units per drop and of which 4 drops were given daily. In this series we gave, in terms of rat units, approximately 28 units of irradiated milk, 60 of yeast milk and 320 of viosterol. It is very striking that it was necessary to give such a large number of units of viosterol. The "efficacy ratio" of irradiated milk to viosterol has been found to be close to 15:1, about fifteen times as many units of activated ergosterol being required as of activated milk.

These results must be judged not only by themselves but in the light of similar investigations of the past few years, more particularly those undertaken in 1931 and 1932. During the winter of these years, extensive prophylactic as well as curative clinical tests were carried out with irradiated milk and with yeast milk. After a careful review of these various clinical studies we have come to the conclusion that an irradiated milk which contains approximately 56 units to the quart suffices to protect infants against rickets when from 20 to 24 ounces daily is fed, which indicates that the protective dose is about 35 to 42 rat units. A similar survey of our clinical experiences with yeast milk leads to the conclusion that this type of milk should be elaborated so as to contain 100 or possibly 90 units per quart, so that the infant will receive about 70 rat units a day. Turning to viosterol, our experience was not so satisfactory and we do not feel that we can set down the dosage with the same degree of definition. However, irradiated ergosterol in one strength or another has been given in our institution every winter since it was discovered, so that we have a large number of observations which cover a considerable period. On analyzing all these data and weighing them in conjunction with the present curative test, it would seem that about 600 to 800 rat units of this antirachitic agent should be given in order to afford adequate protection; this means from 8 to 10 drops of a 80 unit preparation (250 D). It will be seen that this dosage conforms with that usually recommended by physicians as well as by pharmaceutists. As has been previously emphasized, viosterol given in adequate dosage is the most satisfactory antirachitic for curative purposes.

The study included a clinical appraisal of cod liver oil in ½ teaspoonful (2 cc.) and 1 teaspoonful (4 cc.) amounts. The results were somewhat irregular and unsatisfactory. In regard to this antirachitic it is necessary, therefore, to fortify our observations by previous experiences as well as by the large number of reports in the literature. The preparation of cod liver oil which we assayed clinically this year, when titrated biologically in two laboratories, was found to contain from 37 to 40 rat units per gram. Dr. Nelson[10] of the U. S. Bureau of Chemistry states that he has found a composite of twenty-six samples of medicinal cod liver oil to contain 37 Steenbock units per gram, so that the sample which we used may be regarded as representative. Indeed, judging by a paper of Drummond and Hilditch[11] and a more recent report of Coward,[12] from 37 to 40 rat units is representative of medicinal cod liver oil not only in this country but in England as well. In summing up our experience and the experiences of others with an oil of this potency,

10. Nelson: Personal communication to the authors.
11. Drummond, J. C., and Hilditch, T. P.: The Relative Value of Cod Liver Oil from Various Sources, H. M. Stationery Office, 1930.
12. Coward, K. H.: Analyst, June, 1932.

which is almost three times the standard, or about 3 D, it would seem that about 2 teaspoonfuls, or 8 cc., may be set down as the prophylactic dose. Translating cubic centimeters of oil into grams, the requirement becomes 6.4 Gm. daily, or about 250 rat units of cod liver oil. Although this figure is necessarily inexact, it is evident that, from the standpoint of effective unitage, the therapeutic dose of cod liver oil falls between the antirachitic milks and viosterol. This conclusion is in accordance with our previous experiences.

It is true that there is considerable variation in susceptibility to rickets and in individual requirement of the antirachitic factor. Only recently, in an experimental study, the rôle of constitution in the development of this disorder was stressed.[13] Nevertheless, and in spite of such individual variations, the clinical course of rickets is sufficiently constant to justify the laying down of a definite dosage for the various antirachitic agents.[14]

It may be added, without entering minutely into the question, that the relatively high potency of irradiated milk and low potency of viosterol cannot be accounted for by the relative amounts of the antirachitic factor in the blood. When protective doses were given, a definitely larger number of units was found in the blood of the infants that had received viosterol, notwithstanding the fact that the clinical effect was about the same. Evidently the clinical effect does not parallel the antirachitic content of the blood, as tested on rats. Assays of the feces showed that, in general, the absorption of the various antirachitics was relatively the same; when the antirachitic unitage was large, more was recovered from the feces, and when a small number of units was fed, the absolute amount in the feces was small.[15]

CONCLUSIONS

A further clinical test was carried out on irradiated milk, "yeast milk," cod liver oil and viosterol, the study being controlled with bio-assays of the various antirachitic preparations. It was found that the antirachitic milks, especially irradiated milk, require a surprisingly small number of rat units (from 35 to 40 daily) to confer protection or effect healing, and that viosterol requires the largest number.

Irradiated milk seems to be the most desirable antirachitic for prevention on a communal scale. Only 20 to 24 ounces daily is needed to assure protection. This therapeutic agent has the advantage of being automatic and inexpensive and of providing calcium and phosphorus as well as the antirachitic factor.

The marked distinction between clinical units and rat units implies that the present method of rating antirachitic agents is misleading. Their respective biologic potencies, as expressed in rat units, are not interchangeable. Each type must be appraised for itself. Its minimal number of therapeutic units must be ascertained clinically and then expressed in terms of rat units. The wide differences in activity between various antirachitics indicate that a clinical as well as a laboratory pharmacology must be taken into account.

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13. Hess, A. F., and Blackberg, S. N.: An Experimental Study of "The Constitutional Factor" in the Etiology of Rickets, Am. J. Physiol. **102**: 8 (Oct.) 1932.

14. In examining infants for rickets, it should be borne in mind that there is not only a rachitic beading but also what may be termed "antirachitic beading." By this is meant an enlargement of the costochondral junctions due to the giving of antirachitic agents for long periods and especially in excessive amounts. Beading of this kind may be mistakingly judged as rachitic in nature and may lead to the inference that the therapy has been ineffective. Associated with "antirachitic beading" one may find hypertrophy of the epiphyses at the wrists, associated with hypercalcification but unaccompanied by any changes in calcium or phosphorus concentration of the blood (Hess, A. F.; Lewis, J. M., and Rivkin, Helen: Clinical Experiences with Irradiated Ergosterol, J. A. M. A. **91**: 783 [Sept. 15] 1928). A condition of this kind was emphasized recently by Irish (Irish, H. E.: Skimmed Milk Feeding on Bones of Infants, Am. J. Dis. Child. **45**: 96 [Jan.] 1933).

15. Hess, A. F.; Weinstock, Mildred, and Gross, Joseph: A Biologic Assay of the Blood and Feces of Infants Receiving Various Antirachitics, Proc. Soc. Exper. Biol. & Med., to be published.

MIKULICZ'S DISEASE AND DIABETES

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During the past decade, a number of European investigators have been interested in studying the parotid glands. Many clinical observations have been made, and considerable experimental work has been done in an effort to learn the true function and significance of the salivary glands. In spite of the tremendous amount of work that has been done on this problem, the question as to whether or not the salivary glands have an internal secretion has not yet been answered satisfactorily. Considerable clinical and experimental evidence has accrued to indicate that there probably is an indirect if not a direct relationship between the salivary glands and the glands of internal secretion. That the parotid glands have a function in some way analogous or related to that of the pancreas has been suggested by recent clinical observations and experiments. Swelling of the parotid glands, or Mikulicz's disease, has been observed recently in a number of patients with mild diabetes. Recently I have studied four patients who exhibited this combination of symptoms. So far as I know, this clinical picture has not been described in the American literature, so I am reporting the four cases I have studied together with a brief review of related clinical observations and experiments that have been published in Europe. Most of these articles were reviewed by Charvát [1] last year.

Baccarani and Zagari [2] in 1903 pointed out that in serious chronic ailments, such as pulmonary tuberculosis and cancer, there are sometimes cirrhotic processes in the salivary glands with atrophy, which leads to cachexia, to serious digestive disturbances, even to death. They initiated substitution therapy with favorable results in such cases by injection of extracts from the parotid glands and also by ligation of the salivary ducts.

There have been innumerable clinical observations which would point to some relationship between the parotid and the endocrine glands. In epidemic parotitis, orchitis in men and oophoritis and mastitis in women are rather common complications. It has repeatedly been stressed that these complications of mumps are much more frequent in patients with well developed sexual function and that they rarely occur in young children or in those past the prime of life. There are also recorded cases of parotitis following gynecologic operations. Mohr [2] reported that in cases of atrophy of the genital glands there is hypertrophy of the parotids. Haemerli [2] and also Dalche [2] reported cases of hypertrophy of the parotid gland in women at the time of the menopause and in men with dimin-

From the Cleveland Clinic.

1. Charvát, Josef: Mikuliczův syndrom u úplavice cukrové: Příspěvek k problému vnitřní sekrece slinných žláz, Časop. lék. cesk. **71**: 133-137 (Jan. 29) 1932.

2. Cited by Charvát.[1]

ished sexual function. In 9 per cent of a series of Polish children, Ehrlich [2] found enlarged parotid glands which he considered due to endocrine disturbances caused by undernutrition. Apert [2] described a case in which there was enlargement of the parotid glands in conjunction with a hypofunctioning thyroid gland, and Gourdel [2] has described the same finding in cases of myxedema. Bauer [3] recorded enlargement of the parotid gland in cases of goiter and in men who had testicular tumors. In 1927, Römer [4] described two cases in which there was enlargement of the parotids with disturbance of thyroid function. Loos [2] has described the case of a woman, aged 53, who had had noninflammatory swelling of the parotid since she was 8 years old, which he felt was due to some disturbance of the endocrine system.

In 1897, Ferrannini [5] reported a case of salivary diabetes. The patient had an excessive flow of saliva (several liters in twenty-four hours) which contained dextrose. Glycosuria alternated with and replaced the glycosialorrhea. This case suggested a possible reciprocal relationship between the salivary glands and the pancreas, and Ferrannini's assistant, Farroni,[6] carried out a series of investigations on the function of the salivary glands.

Farroni [6] showed that extracts of the salivary glands of cattle exerted a glyco-inhibitory action in rabbits, preventing or controlling glycosuria following the administration of epinephrine, phlorhizin and morphine. In vitro, these extracts exhibited a marked glycolytic action on different sugars. On the basis of these observations, Ferrannini postulated an endocrine action of the salivary glands analogous to that of the pancreas. A decade later, Best, Scott and Banting [2] found much insulin in the salivary glands, which they thought was due to extravasation from the blood stream. Later Poluffo [2] studied the p_H of saliva in normal persons and in diabetic patients and found that there was no essential difference in the two groups, although, after the administration of insulin, the alkalinity of the saliva increased somewhat.

Saliva causes a diastasic breaking down of the carbohydrates and is necessary for proper gastric digestion. If both parotids are removed from an experimental animal, death from cachexia results within a short time. This was first shown by Baccarani and Morano [2] in 1902. These experiments were confirmed in 1907 by Hemeter,[2] who went a step further and showed that, if extracts of saliva were injected or parotid glands implanted into the abdominal wall of parotidectomized animals, marasmus disappeared and the animals lived. Pagliani [2] also prolonged the life of his experimental animals by injections of saliva, and Goljanitsky [7] saved his by intra-abdominal implantation of salivary glands.

In 1927, Utimura [8] found that dogs died within three months after extirpation of the parotid glands, but he did not ascribe death to digestive disturbances as previous workers had done. The dogs displayed marked weakness and anemia. Utimura [8] found that after parotidectomy the action of the thyroid was increased, the islands of Langerhans were enlarged, and there was an increase in the amount of liver glycogen. When the submaxillary glands were removed, these changes were reversed, and if both the parotids and the submaxillary glands were extirpated there were no changes in the pancreas and liver.

A year later, Bono Simonetta [2] excised the parotids, the sublinguals and the infra-orbital glands of rabbits, but his animals lived, and hence he questioned the results of earlier extirpation experiments.

Many investigators have ligated one or both parotid ducts in studying the problem of parotid function. Goljanitsky,[7] Dobrzaniecki and Michalowski,[9] Mansfeld and Schmidt [10] and Zimmermann [11] have published the results of extensive investigations. Goljanitsky [7] found that, when one parotid was ligated, changes soon occurred in the other gland. He explained this on the basis of Metchnikoff's theory of cytotoxins. He felt that concomitant disorders of the gonads and parotids could also be explained by the fact that they have related cytotoxins. Mansfeld, proceeding on the assumption that the endocrine organs are glands which have lost their secretory ducts, and that hence any gland of external secretion could be converted into one of internal secretion by depriving it of its excretory duct, anticipated that ligation of the ducts of Steno would convert the parotid glands into endocrine glands with an insulin-like secretion. This hypothesis was based on the embryologic and morphologic similarity of the pancreas and the salivary glands and the fact that both are concerned in the digestion of carbohydrates. When he ligated the parotid glands of dogs, he found that the level of the blood sugar was lowered. Later, the ligated glands were extirpated and the level of dextrose returned to normal. In dogs with experimental diabetes produced by partial extirpation of the pancreas, ligation of the parotid ducts controlled the hyperglycemia. However, ligation of the ducts of Steno had no effect in controlling the diabetes produced by total removal of the pancreas. Mansfeld concluded from these experiments that the parotid glands must produce a substance which stimulates the pancreas to increased function. Seelig [12] and also Dobrzaniecki and Michalowski [9] repeated Mansfeld's experiments and confirmed his observations.

In 1932, Zimmermann [11] made similar studies and also made extensive histologic studies of the parotid glands removed at varying intervals after ligation. These showed a gradual dilatation of the ducts with atrophy and fibrosis of the glandular parenchyma. Goljanitsky [7] also made comparative histologic studies of the pancreas and the parotid. He felt that the star cells resting on the membrana propria of the secretory canal and the so-called Giannuzzi's moon-shaped cells correspond to the islands of Langerhans in the pancreas. When the parotid duct was ligated, he found that the epithelium disappears and the interstitial tissues hypertrophy, thus stimulating the endocrine activity of the gland. He felt that the internal secretion of the salivary gland has a function similar to

3. Bauer, J.: Ueber Parotidisvergrösserung, Ztschr. f. ang. Anat. **4**: 233, 1919.
4. Römer, C.: Speicheldrüsen und innere Sekretion, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **40**: 465-280, 1927.
5. Ferrannini, Andrea: A Glycosialorrhea and Glicosilorrhea, Riforma med. **44**: 1249 (Sept. 24) 1928; Glicosilorrhea and the Internal Secretion of the Salivary Glands, Rev. de méd., Paris **31**: 269, 1911.
6. Farroni, B.: Funzione endocrina delle glandole salivari ed eliminazione degli zuccheri, Rev. crit. di clin. med. **12**: 577, 593, 1911.
7. Goljanitsky, J. A.: The Question of Secretion of the Endocrine Glands, Arch. f. klin. Chir. **130**: 763, 1924.
8. Utimura, S.: Einfluss der Exstirpation der Speicheldrüsen auf verschiedene Organe, insbesondere auf die endokrinen Drüsen, Jap. J. M. Sc. Tr. VIII, Int. Med., Pediat. & Psychiat. **1**: 481-488 (Dec.) 1927.
9. Dobrzaniecki, Wladyslaw, and Michalowski, Emil: Influence de la suppression de l'excrétion de la parotide sur la glycorégulation, Lyon chir. **28**: 571-579 (Sept.-Oct.) 1931.
10. Mansfeld, G., and Schmidt, Eugen: Versuche zu einer operativen Behandlung des Diabetes, Klin. Wchnschr. **7**: 1457-1460 (July 29) 1928.
11. Zimmermann, L. M.: Effect of Ligation of Parotid Ducts on Carbohydrate Tolerance of Normal Dog, Arch. Int. Med. **49**: 409 (March) 1932.
12. Seelig, S.: Ueber Beziehungen zwischen Parotis, Pankreas, Blutzucker und Diabetes mellitus, Klin. Wchnschr. **7**: 1228-1230 (June 24) 1928.

that of insulin and that both hormones are antagonistic to epinephrine.

As the result of these experimental investigations on animals, numerous attempts have been made to treat diabetic patients by ligation of the parotid ducts. After his early experiments, Goljanitsky [7] reported beneficial results from ligation of the salivary duct in a patient with diabetic gangrene. In 1929, he [13] described some cases in which ligation of the parotid ducts and transplantation of the submaxillary gland seemed to ameliorate the symptoms of diabetes. Seelig [12] reported favorable results in seven of ten diabetic patients in whom one parotid duct had been ligated. However, in a later publication, dealing with eighteen cases, he [14] concluded that the results of this operation were negligible.

An interesting clinical study was made by Mironescu, Nicolicesco and Stefanesco-Dima.[15] They determined the blood sugar in fifteen patients with epidemic parotitis and found normal values in nine, a slightly increased level in five, and slight hypoglycemia in one. None of these patients had glycosuria.

It is now forty-five years since von Mikulicz [16] described the disease or syndrome that bears his name. The patient he described was a man, aged 42, who had bilateral chronic painless enlargement of the lacrimal glands and of the salivary glands, which could not be accounted for by any of the clinical observations, and hence the symptoms were ascribed to some obscure infection. The patient died later the same year from perityphlitis, and during his last illness the parotid glands decreased rapidly in size and, at the time of death, appeared almost normal. Since von Mikulicz's description, more than a hundred instances have been reported in the literature, but these are not all regarded as authentic cases. Schaffer and Jacobsen [17] have proposed the following classification of cases of enlargement of the parotid gland:

1. von Mikulicz disease:
   - Familial—rare.
   - von Mikulicz disease proper.
2. von Mikulicz syndrome:
   - Leukemia—frequent.
   - Tuberculosis—rare.
   - Syphilis.
   - Lymphosarcoma—frequent.
   - Toxic agents, lead, iodides, etc.
   - Gout.
   - Febris uveoparotidea subchronica.

Last year, Charvát,[1] in addition to a review of the literature on the parotid glands, reported three cases of mild diabetes in which there was also symmetrical painless noninflammatory swelling of the parotid glands, which had persisted from six months to three years. Lymphatic leukemia, syphilis and tuberculosis were ruled out in each case.

Charvát felt that the parotid swelling represented a compensatory hyperplasia of the glandular parenchyma in response to failing insulogenic function or a symptom of endocrine hyperfunction of the salivary glands, which might account also for the mildness of the diabetic state. In two of these patients, the parotid swelling decreased with treatment for the diabetes.

Flamm [18] became interested in the study of hypertrophy of the parotid glands as a symptom of diabetes mellitus through observing a woman with hypertension who had frequent attacks of swelling of the salivary glands, which were not accompanied by pain, fever or other signs of inflammation. In the intervals between attacks, the parotid glands remained somewhat larger than normal. Later, diabetes mellitus was discovered with continued recurrence of parotid hypertrophy. This caused a peculiar transformation of the features of the face, which Flamm noticed was quite characteristic of a good many patients with diabetes.

In order to approach the study from a different point of view, Flamm decided not to examine the parotid glands of patients with diabetes but to study patients with abnormally large parotid glands. In a group of twenty-seven patients with swelling of the parotid glands, sixteen showed glycosuria and also an increase in the fasting blood sugar. Dextrose tolerance tests showed some decreased sugar tolerance in the other eleven patients. It also was noted that most of these patients belonged to the constitutional type designated as sthenic hypertension diabetes. Flamm [18] offered no direct explanation of the functional processes underlying this hypertrophy of the parotids in diabetic patients, but concluded that it might be interpreted as a compensatory process.

Recently, I have observed four patients with enlargement of the parotid glands and mild diabetes. None of these patients sought medical advice because of the diabetic condition, although in one case diabetes had been diagnosed previously but the patient had not had adequate or systematic treatment. In each instance the enlargement of the parotid glands was noted in the clinical examination, with subsequent detection of glycosuria and hyperglycemia. In none of these cases could the parotid hypertrophy be attributed to any inflammatory or infectious process.

REPORT OF CASES

CASE 1.—A Syrian woman, aged 50, complained chiefly of chronic cough, dyspnea and pain in the chest. The patient was obese, 44 per cent overweight, and her blood pressure was 130 systolic, 80 diastolic. The most significant observations in the physical examination were bilateral symmetrical swelling of the parotid glands, emphysema and increased bronchial sounds in the left side of the chest. A roentgenogram of the chest showed dilatation of the bronchi and fibrosis of the lungs and cardiac hypertrophy. The diagnosis was chronic bronchitis with bronchiectasis and myocarditis. There was marked glycosuria, although the fasting blood sugar was normal. However, a dextrose tolerance test showed decreased tolerance. The diabetes was satisfactorily controlled on a restricted diet. Several infected teeth were removed, and general physical therapeutic measures, including heat and massage, were instituted. The patient's general condition improved somewhat, but her symptoms were not entirely relieved. There was no change in the parotid swelling.

CASE 2.—An Italian woman, aged 37, who appeared about twenty years older, came to the clinic complaining of severe occipital pain. She was very obese, about 55 per cent overweight, and her blood pressure was 139 systolic, 86 diastolic. Aside from the obesity, the only significant physical condition was bilateral enlargement of the parotid glands. A special neurologic examination did not reveal the cause of the severe headaches. A roentgenogram of the skull showed three decal-

13. Goljanitsky, J. A.: Die innere Sekretion der Speicheldrüsen, Ergebn. d. ges. Med. **13**: 125-152, 1929.
14. Seelig, S.: Zur chirurgischen Behandlung der Zuckerkrankheit, Arch. f. klin. Chir. **157**: 322-329, 1929.
15. Mironescu, T.; Nicolicesco, N., and Stefanesco-Dima, Vasile: Troubles régulateurs de la glucose dans la parotidite épidémique, Bull. Acad. de méd., Paris **101**: 647-651 (May 28) 1929.
16. von Mikulicz, Johann: Ueber eine eingenartige, symmetrische Erkrankung der Thränen- und Mundspeicheldrüsen, Beitr. z. klin. Chir., Festschrift, Theodor Billroth, Stuttgart, 1892, pp. 610-630.
17. Schaffer, A. J., and Jacobsen, A. W.: Mikulicz's Syndrome, Am. J. Dis. Child. **34**: 327 (Sept.) 1927.
18. Flamm, Ernst: Hypertrophy of the Parotid Glands as a Symptom of Diabetes Mellitus, Klin. Wchnschr. **11**: 1704 (Oct. 8) 1932.

cified areas; one, left frontal; one, right temporal, and a rather irregular area well forward at the vertex. The significance of this finding was not determined in relation to the cephalalgia. The cervical sympathetic nerves were injected in an effort to relieve the pain, but this treatment was only partially successful. The laboratory examinations revealed marked glycosuria and hyperglycemia (fasting blood sugar, 214). A diet containing 1,800 calories and 15 units of insulin three times a day were prescribed. The patient has not returned to the clinic since, and nothing is known of the results of treatment.

CASE 3.—An Italian woman, aged 52, complained that for five years she had not been in good health. Her abdomen had been enlarging steadily; there was burning on urination, and during the last year there had been a coarse tremor of the hands and feet, with some numbness and tingling of the feet. The patient had had seventeen pregnancies, with only four children living and well. A number of pregnancies resulted in abortions or stillbirths, and several children died during the first year of life. The patient was short and obese, and her blood pressure was 150 systolic, 82 diastolic. The parotid glands were symmetrically enlarged. The abdominal wall was relaxed and the abdomen markedly distended. A large mass in the hypochondrium was found to be due to ptosis of the liver. Hemorrhoids had been present for twenty-eight years. A typical pill-rolling position of the hands with a coarse intermittent tremor was noted. The fasting blood sugar was 272 mg. per hundred cubic centimeters, and the blood urea 69 mg. The hemoglobin and red blood cell counts were below normal.

The diagnosis was diabetes, Parkinson's disease, pernicious anemia, Mikulicz's disease, obesity and abdominal visceroptosis. The diabetes was controlled on a diet of 140 Gm. of carbohydrate, 60 Gm. of protein and 111 Gm. of fat, with 10 units of insulin three times daily, but no change was noted in the size of the parotid glands.

CASE 4.—An Italian woman, aged 68, sought relief from intense itching of the skin, which had begun about a week before and had become progressively worse. Nine months before she had had polyuria and had been told by her family physician that she had diabetes. Her diet had been only slightly restricted and she had received no insulin. The polyuria had disappeared. Her blood sugar was 300 mg. per hundred cubic centimeters and she had severe glycosuria. Aside from moderate obesity, bilateral swelling of the parotid glands was the only significant finding in the physical examination. The skin condition was diagnosed as diabetic dermatitis. On a routine diabetic diet of 1,800 calories and 10 units of insulin twice daily, her blood sugar returned to normal, and she was advised to follow this regimen after she left the hospital. At a subsequent examination, the blood sugar had increased slightly, and the insulin dose was increased to 15 units twice a day, which has controlled the diabetes satisfactorily.

COMMENT

All four of these patients were obese, and there was a striking similarity in their facial appearance. Not one of them has been observed more than a few months, and during that time there has been no diminution in the size of the parotid glands. The diabetes was mild in all these cases and was easily controlled with moderate dietary restrictions and small doses of insulin. Whether the parotid swelling represents a compensatory process brought about by decreased pancreatic function, as Charvát and Flamm have suggested, remains an open question. But these cases are reported with the hope that it may stimulate more clinical observations and more interest in the possible relationship between the salivary glands and the pancreas. At present the problem is largely of academic interest, but further experiments and observation may bring forth knowledge that may be of significant importance clinically.

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VACCINATION AGAINST WHOOPING COUGH

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As vaccination against whooping cough is still much discussed, the following observations might perhaps be of some interest.

The vaccine used in the State Serum Institute in Copenhagen is always made from several recently cultivated strains of Bordet-Gengou bacilli; forty-eight hour blood agar cultures are emulsified in physiologic solution of sodium chloride containing 1 per cent solution of formaldehyde, so that the suspension contains about 10,000 millions of bacilli per cubic centimeter. The vaccine is given in three injections intramuscularly or subcutaneously with intervals of from three to four days: 0.5, 0.7 and 1.0 cc. This dosage is greater than that usually employed.

As generally maintained, one of the advantages of whooping cough vaccination is the absence usually of severe reactions following the injections, although it would seem correct to call attention to two deaths that have occurred in Denmark. In both cases, the children concerned were new-born in families at the time when whooping cough was present. The physician in charge therefore considered it desirable to vaccinate the new-born children. Immediately after birth one child was given 0.1 cc. of whooping cough vaccine, subcutaneously, causing no symptoms, and four days later 0.15 cc. was given. One-half hour after the last injection, contractions in the arms and legs occurred, followed by cyanosis, hiccup, convulsions and death within a few minutes. The other case, occurring two years later, was that of a child weighing 2,250 Gm., born five weeks prematurely. Eight days after birth, 0.1 cc. of whooping cough vaccine was given, causing no symptoms. Three days later, 0.2 cc. was injected (all injections subcutaneously). Two hours after this injection, the child died suddenly with slight cyanosis but no convulsions or vomiting. At the postmortem examination no definite cause of death could be established. No attempts will be made here to explain these two deaths. In spite of the fact that numerous new-born children have been vaccinated without any reactions, we now do not recommend the vaccination of children under 1 month of age.

Furthermore, some of my colleagues have told me that they have seen considerable malaise following the vaccination.

The reason for the difference of opinion concerning the value of the vaccination lies to some extent probably in the fact that no sufficient distinction has been made between the therapeutic and the prophylactic properties of the vaccine. Most of the reports conclude that if given early in the catarrhal stage the vaccine will have a good effect; the later the vaccine is given in the convulsive stage, the less effect can be expected. This appears from the reports of most of the Danish officers of health and also is the consensus of the Danish pediatric society.[1]

The greatest difficulty in the appraisal of the effect of the whooping cough vaccination is that no suitable control material is at hand. Such a control material that

From the State Serum Institute.

1. Meyer, A. H.; Kristensen, Martin, and Sørensen, Einar: Whooping Cough Vaccination, Acta Pædiat. **4**: 21, 1924; abstr., Ugesk. f. læger. **91**: 1141 (Dec. 12) 1929. Madsen, Thorvald: Whooping Cough: Its Bacteriology, Diagnosis, Prevention and Treatment, Boston M. & S. J. **192**: 50 (Jan. 8) 1925.

is especially well adapted in this respect is found, however, in the Faroe Islands.[2] The conditions peculiar to these islands cause the whooping cough epidemics to appear in waves separated by quite long intervals entirely free from whooping cough. An epidemic of this kind started in 1923 and continued in 1924. On this occasion, vaccination on a large scale was carried out, 2,094 individuals being vaccinated, whereas this was not possible in 627 cases. The result was that the majority of both vaccinated and nonvaccinated individuals contracted whooping cough. As a prophylactic measure, its value, therefore, was not worth mentioning. On the other hand, only five deaths occurred in the vaccinated group as compared to eighteen deaths in the nonvaccinated group. The mortality in the latter group was therefore twelve times that of the former, and the course of the disease was as a whole much more severe in the nonvaccinated individuals.

Detailed information regarding the disease was obtained by Dr. Zachariassen and is summarized in table 1. The earlier the vaccination was carried out, the better was the effect: the best results were obtained when the vaccination was completed one week before the onset of the disease.

Another whooping cough wave appeared in the Faroe Islands in 1929; Dr. Zachariassen was kind enough to give me his observations. This time, vaccination was carried out in 1,832 individuals, while 446 were not vaccinated. A comparison between these two groups is shown in table 2.

In this epidemic the prophylactic value of the vaccination seems to have been much better than in the first one, 458 of the 1,832 vaccinated avoiding whooping cough, whereas among the 446 nonvaccinated only 8 did not become infected.

The explanation of the favorable results of vaccination in the Faroe Islands probably rests on the following facts: 1. The vaccine was made from young strains.[3] 2. The dose used was rather large, a total of 22,000 million bacteria. 3. The vaccination was completed shortly before the onset of the epidemic; i. e., at a time when the titer of antibodies produced by the vaccine is highest.[4]

TABLE 1.—*Comparison of Vaccinated and Nonvaccinated Groups*

	450 Vaccinated	405 Nonvaccinated
Mild cases	410	275
Moderate cases	35	90
Severe cases	4	27
Fatal cases	1	13

TABLE 2.—*Analysis of Epidemic of 1929*

	1,832 Vaccinated	446 Nonvaccinated
Not attacked	458	8
Mild cases	1,336	225
Moderate cases	29	170
Severe cases	8	35
Fatal cases	1	8

2. Heerup, H.: Erfaringer fra en Kighosteepidemi i Thorshavn Lægekreds August, 1923, til Foraaret 1924, Ugesk. f. læger. **86:** 675 (Sept. 11) 1924. Kofoed, S. E.: Nogle Oplysninger om Optræden af Kighoste i Sandø Præstegaard (Færøerne) 1923-24: Specielt med Henblik paa Anvendelsen af Kighostevaccine, ibid. **88:** 585 (June 17) 1926. Rasmussen, R. K.: Om Kighoste og Kighostevaccination i Ejde Lægedistrikt paa Færøerne, Bibliot. f. læger., 1925, p. 130.

3. Gardner, A. D., and Leslie, P. H.: Early Diagnosis of Whooping Cough by the Cough-Droplet Method, Lancet **1:** 9 (Jan. 2) 1932.

4. Kristensen, Martin, and Ahrend Larsen, S.: Production d'anticorps après la vaccination contre la coqueluche, Compt. rend. soc. de biol. **95:** 1110 (Nov. 5) 1926.

A summary of the results of the two epidemics, 1923-1924 and 1929, both of which occurred during the winter, is shown in table 3.

The mortality in the vaccinated group is therefore one sixteenth of that in the nonvaccinated group. This figure is sufficiently large to prove the usefulness of the vaccination when carried out in time. Furthermore, the disease in vaccinated individuals takes a much milder course and is of shorter duration. It is worth mentioning that no selection whatever was made between the vaccinated, so that the nonvaccinated and vaccinated groups of individuals in both epidemics were quite comparable in respect to age, time of epidemic and surrounding conditions.

TABLE 3.—*Results of Two Epidemics*

	3,926 Vaccinated	1,073 Nonvaccinated
Deaths	6	26
Percentage	0.15	2.4

LIVER-GASTRIC TISSUE PREPARATIONS IN THE TREATMENT OF PERNICIOUS ANEMIA

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The therapeutic effectiveness of liver and fractions of liver in the treatment of patients with pernicious anemia is well established. Minot, Cohn, Murphy and Lawson,[1] and Zerfas [2] have demonstrated that the amount of liver extract No. 343 derived from 300 Gm. of whole liver (from 12 to 14 Gm. of the dried powder) is the minimal amount required to produce maximal reticulocyte responses when fed daily by mouth to patients with pernicious anemia in relapse. Sharp,[3] Sturgis and Isaacs,[4] Conner,[5] Wilkinson [6] and others have shown that preparations of hog gastric tissue are likewise effective when fed daily in amounts equivalent to from 200 to 300 Gm. of fresh stomach tissue (from 30 to 40 Gm. of desiccated material). Following the work of Castle and his associates,[7]

From the Lilly Laboratory for Clinical Research, Indianapolis City Hospital, and the Department of Medicine, Indiana University School of Medicine.

1. Minot, G. R.; Cohn, E. J.; Murphy, W. P., and Lawson, H. A.: Treatment of Pernicious Anemia with Liver Extracts: Effects on the Production of Immature and Mature Red Blood Cells, Am. J. M. Sc. **175:** 599 (May) 1928.

2. Zerfas, L. G.: Liver Extract for Pernicious Anemia: Blood Changes During the First Month; Report of 101 Cases, Arch. Int. Med. **47:** 135 (Jan.) 1931.

3. Sharp, E. A.: An Antianemic Factor in Desiccated Stomach. J. A. M. A. **93:** 749 (Sept. 7) 1929.

4. Sturgis, C. C., and Isaacs, Raphael: Desiccated Stomach in the Treatment of Pernicious Anemia, J. A. M. A. **93:** 747 (Sept. 7) 1929.

5. Conner, H. M.: The Feeding of Gastric Tissue in the Treatment of Pernicious Anemia, J. A. M. A. **96:** 500 (Feb. 14) 1931.

6. Wilkinson, J. F.: Pernicious Anemia: Preliminary Report of Results Obtained by Treatment with Certain Preparations of Stomach. Brit. M. J. **1:** 236 (Feb. 8) 1930.

7. Castle, W. B.: Observations on the Etiological Relationship of Achylia Gastrica to Pernicious Anemia: I. The Effect of the Administration to Patients with Pernicious Anemia of the Contents of the Normal Human Stomach Recovered After Ingestion of Beef Muscle, Am. J. M. Sc. **178:** 748 (Dec.) 1929. Castle, W. B., and Townsend, W. C.: Observations on the Etiological Relationship of Achylia Gastrica to Pernicious Anemia: II. The Effect of the Administration to Patients with Pernicious Anemia of Beef Muscle After Incubation with Normal Human Gastric Juice, ibid. **178:** 764 (Dec.) 1929. Castle, W. B.: Townsend, W. C., and Heath, C. W.: Observations on the Etiological Relationship of Achylia Gastrica to Pernicious Anemia: III. The Nature of the Reactions Between Normal Human Gastric Juice and Beef Muscle Leading to Clinical Improvement and Increased Blood Formation Similar to the Effect of Liver Feeding, ibid. **180:** 305 (Sept.) 1930.

Reimann [8] reported a marked increase in the potency of liver when it was digested in normal human gastric juice. Walden and Clowes [9] obtained a very active preparation made by the interaction of liver or liver extract No. 343 with small amounts of fresh hog gastric tissue, indicating that from 4 to 6 Gm. was as effective therapeutically as from 12 to 17 Gm. of liver extract No. 343 or from 30 to 40 Gm. of desiccated whole stomach.

We [10] have since demonstrated that when subminimal amounts of liver extract No. 343 (that derived from 100 Gm. of liver) were incubated with 100 cc. of normal human gastric juice—itself inactive—for four hours at 40 C. and fed daily to patients with pernicious anemia, maximal reticulocyte responses were obtained. The explanation for the enhanced activity of subminimal amounts of liver and fractions of liver, when incubated with small amounts of fresh hog gastric tissue or with normal human gastric juice, remains to be determined. Further experiments are in progress which may help to explain the enhanced potency of such preparations.

ment were too high for reticulocyte responses to be obtained, have been followed as outpatients, at monthly intervals, for from four and one-half to thirteen months.

RETICULOCYTE RESPONSES

In table 1, the height of the reticulocyte responses, the initial red blood cell counts, the percentages of hemoglobin and the level of the blood at the end of the first month of treatment may be found. Except in a few instances, the absolute number of reticulocytes obtained compares favorably with that obtained by Minot and his associates and by one of us (L. G. Z.).

Case 3 did not show a maximal response of the reticulocytes when nine capsules of Extralin were given daily. Subsequently, an increase of reticulocytes up to 9 per cent (absolute number 168,300) was obtained when the amount of liver extract No. 343 derived from 300 Gm. of whole liver was administered daily. The red blood cell count and hemoglobin did not respond, however, until liver extract was given by injection. Patients 4, 8 and 9 had had slight reticulocyte responses immediately preceding the Extralin therapy, so that

TABLE 1.—*Response of the Blood of Fifteen Patients with Pernicious Anemia in Relapse to Extralin Therapy*

	At Beginning of Treatment							At End of First Month	
Case	Red Blood Cells Millions per Cu.Mm.	Hemoglobin Percentage (Newcomer)	Reticulocyte Percentage	Extralin Capsules, Number per Day	Day of Reticulocyte Peak	Reticulocyte Percentage at Peak	Absolute Number Reticulocytes per Cu.Mm. at Peak	Red Blood Cells Millions per Cu.Mm.	Hemoglobin Percentage (Newcomer)
1	1.14	30.7	0.8	12	7	31.6	505,600	2.96	60.2
2	1.16	40.4	0.3	12	8	21.3	366,300	3.41	68.8
3	1.28	30.2	0.5	9	9	8.0	137,600	....	....
4*	1.30	31.5	1.7	12	10	10.7	172,270	3.55	66.1
5a	1.53	40.4	0.4	12	7	16.5	313,500	4.25	59.0
6	1.54	41.0	4.5	12	8	17.6	380,140	....	....
7	1.68	41.5	0.2	12	10	22.7	535,500	3.22	50.0
8*	1.70	42.0	4.8	12	6	13.7	297,390	3.72	74.7
5b	1.71	33.0	1.4	12	8	28.0	464,800	3.97	50.6
9*	1.95	45.8	0.2	12	8	12.4	271,100	3.04	66.8
10	1.98	40.4	0.1	12	8	18.5	445,800	4.20	59.8
11	2.08	50.5	0.1	12	8	16.4	428,000	....	....
12	2.11	64.3	0.1	9	8	11.2	286,600	....	....
13	2.54	68.8	1.9	12	9	4.3	113,950	3.77	72.4
14	3.09	68.8	0.9	9	10	4.0	154,000	....	....
15	3.34	76.4	0.0	12	8	7.5	221,250	4.35	74.7

* These patients had had slight reticulocyte responses to other medication just previous to beginning Extralin therapy.

Our purpose in this paper is to report the clinical results observed when the material [11] prepared by Walden and Clowes was fed daily to patients with pernicious anemia. Many of the lots were experimental in character and contained varying amounts of liver or fractions of liver and hog gastric tissue. In the preparations used, the proportion of original fresh liver, or extract No. 343 derived therefrom, to that of fresh hog gastric tissue varied from 20 to 2 parts of liver to 1 part of stomach. The weight of the material contained in twelve capsules varied between 5 and 6 Gm., averaging 5.8 Gm.

To test the potency of this material in the treatment of patients with pernicious anemia, two methods were employed: 1. In a small series of patients who were in relapse at the beginning of therapy, the reticulocyte response and subsequent increase in red blood cells and hemoglobin following the administration of this material was observed. 2. A larger group of patients, most of whose red blood cell counts at the beginning of treatment were too high for reticulocyte responses to be obtained, have been followed as outpatients, at monthly intervals, for from four and one-half to thirteen months.

maximal responses could not be expected. Accompanying the reticulocyte responses there was the usual marked clinical improvement of the patients.

In table 2 are recorded the reticulocyte responses of four patients who have responded both to the amount of liver extract No. 343 derived from 300 Gm. of liver and to Extralin. It is evident from this table that twelve capsules of Extralin produced as great, if not greater responses of the reticulocytes than did the amount of liver extract No. 343 derived from 300 Gm. of whole liver, when tested on the same patients. Nine capsules daily seemed to be definitely submaximal.

The red blood cell counts of eleven patients who had had reticulocyte responses and who had received only Extralin therapy averaged 3.67 million at the end of the first month of treatment, as compared with 3.5 million reported by Zerfas when the amount of liver extract No. 343 derived from 300 to 600 Gm. of liver was fed daily, and 3.72 million reported by Minot when the amount of liver extract No. 343 derived from 600 Gm. of liver was administered. Six patients who received twelve capsules a day until their red blood cell counts reached normal levels required on the average 3.1 months, while one patient who received nine capsules a day required seven months, thus indicating the inadequacy of this daily amount of material. Minot and his associates stated that "after two months of adequate therapy with liver, red blood cell counts in the

8. Reimann, F.: Versuche zur Potenzierung der Wirkung oral verabreichter Leber, Med. Klin. **27**: 880 (June 12) 1931.

9. Walden, G. B., and Clowes, G. H. A.: Pernicious Anemia: Method Whereby Therapeutic Efficacy of Liver and Liver Fractions May Be Substantially Increased, Proc. Soc. Exper. Biol. & Med. **29**: 873 (April) 1932.

10. Helmer, O. M.; Fouts, P. J., and Zerfas, L. G.: Increased Potency of Liver Extract by Incubation with Human Gastric Juice, Proc. Soc. Exper. Biol. & Med. **30**: 775 (March) 1933.

11. The substance made by the interaction of liver or fractions of liver with hog gastric tissue has been designated by Walden and Clowes as "Extralin." The preparations employed have been supplied by Eli Lilly & Co.

vicinity of 5 million per cubic millimeter are to be expected." A group of eleven of our patients, selected at random, treated with adequate amounts of liver extract No. 343, required on the average 2.6 months for the red blood counts to reach normal levels.

MAINTENANCE DOSAGE

Table 3 shows the average red blood cell counts, the percentages of hemoglobin, and the length of time the various patients have remained on Extralin therapy, as well as similar figures for some of the patients who received other medication.

Sixteen patients have received nine capsules a day over periods of time varying between five and one-half and thirteen months (average 9.6 months). Of these, four have been unable to maintain their red blood cell counts at normal (4.5 million per cubic millimeter), while eight have been unable to maintain the hemoglobin at or above 85 per cent. It was observed that one patient who received from three to six capsules a day did not maintain the red blood cells and hemoglobin percentage at normal levels but subsequently has been able to do so for a period of six months while taking nine capsules a day. Twelve of the sixteen patients receiving above five million while taking twelve capsules of Extralin daily. The percentage of hemoglobin, however, still remains subnormal. Thus, with the three types of therapy employed, the hemoglobin percentage has not increased satisfactorily, though the level of the red blood cells can be maintained at normal. The use of large daily amounts of iron is definitely indicated in this instance. Patient 36, likewise, failed to maintain a normal red blood cell count while receiving weekly injections of liver extract; yet satisfactory progress has been made during the past nine months when twelve capsules of Extralin a day have been administered.

Six of the eight patients who received nine capsules of Extralin a day and who were unable to maintain the percentage of hemoglobin at normal levels had some complication, such as moderate to advanced central nervous system involvement, generalized arteriosclerosis, chronic infections, or other noninfectious complications, though a similar proportion of the patients who have maintained the hemoglobin at normal levels have also had complications. Of the seventeen patients receiving twelve capsules a day who were unable to keep the percentage of hemoglobin above 85, thirteen

TABLE 2.—*Comparative Responses of the Blood of the Same Patients to Liver Extract No. 343 and to Extralin*

	At Beginning of Treatment			Treatment				
Case	Red Blood Cells Millions per Cu.Mm.	Hemoglobin Percentage (Newcomer)	Reticulocyte Percentage	Liver Extract No. 343 Derived From Gm. Liver Daily	Extralin Capsules, Number per Day	Day of Reticulocyte Peak	Reticulocyte Percentage at Peak	Absolute Number Reticulocytes per Cu.Mm. at Peak
2a	0.90	20.8	4.4	300	..	8	19.2	135,400
2b	1.16	40.4	0.3	...	12	8	21.3	366,300
5a	2.01	28.4	1.0	300	..	5	18.6	392,400
5b	1.53	40.4	0.4	...	12	7	16.5	313,500
5c	1.71	33.0	1.4	...	12	8	28.0	464,800
12a	1.83	39.5	2.4	300	..	6	18.7	394,570
12b	1.81	62.5	4.6	300	..	8	14.3	321,000
12c	2.11	64.3	0.1	...	9	8	11.2	286,620
14a	1.08	34.7	3.1	300	..	9	12.9	194,800
14b	3.09	68.8	0.9	...	9	10	4.0	154,000

nine capsules of Extralin a day had been observed by this department for a period of one year or more, preceding the commencement of Extralin therapy; of these, eight failed to maintain normal red blood cell counts when taking daily the amount of liver extract No. 343 derived from 100 to 400 Gm. of whole liver, although all but one of these eight patients have done so while taking nine capsules of Extralin a day.

The thirty-one patients who received twelve capsules a day for from four and one-half to thirteen months (average 8.3 months) maintained normal red blood cell counts, although seventeen patients of this group were unable to maintain the hemoglobin at or above 85 per cent. Fourteen of the thirty-one patients had been treated with other therapeutic substances for at least eight months preceding the use of Extralin, and only five had failed to maintain their red blood counts at normal levels while taking the amount of liver extract derived from 200 to 400 Gm. of liver daily.

Patient 37 was unable to maintain a normal red blood cell count and percentage of hemoglobin when the amount of liver extract No. 343 derived from 300 Gm. of whole liver was given daily during a period of twelve months. Following this, the amount of liver extract No. 343 derived from 100 Gm. of liver was injected intravenously at weekly intervals for a period of thirteen months, and, while the red blood cell count did reach a slightly higher level, the percentage of hemoglobin decreased. For a period of six months now, this patient has maintained a red blood cell count of had complications, while only seven of the remaining fourteen had complications. Three of the four patients who were unable to maintain the red blood cell counts at normal while taking nine capsules a day also had some type of complication.

The three patients who died during treatment had one or more complications in addition to marked central nervous system involvement. Patient 12, aged 66, owing to voluntary omission of therapy for about two weeks before death, had a systemic relapse with exacerbation of chronic cystitis and died following the development of bronchopneumonia. Patient 25, aged 60, received twenty-four capsules of Extralin a day during the last four months of her illness but died following an acute exacerbation of a pyonephrosis. Patient 28, aged 57, had mild diabetes mellitus and markedly deforming hypertrophic arthritis of six years' duration and died following an acute cardiac failure, although the patient had been taking regularly twelve capsules of Extralin a day.

All the patients who have received both types of medication prefer to take the capsules rather than the powder.

COMMENT

The results obtained indicate that the product of the interaction of a subminimal amount of liver or liver extract and a small amount of hog stomach tissue, as described by Walden and Clowes, is highly effective in the treatment of pernicious anemia. The maximal reticulocyte responses obtained demonstrate that twelve

capsules are equivalent to the amount of liver extract No. 343 derived from 300 to 400 Gm. of whole liver. However, it appears that the time required for the patient to reach a normal red blood cell level is slightly longer when Extralin is used. Although essentially all the patients received both types of therapy gratis, we feel that many of them have taken the capsules containing Extralin with greater regularity than they did the liver extract and have therefore maintained their red blood cell counts at much higher levels. The fact that the patients prefer the capsules must be considered in comparing the ability of the two preparations to maintain the red blood cell counts at normal levels. Many of the patients have not been studied for a sufficient length of time as yet regarding their maintenance dosage requirements, but the fact that twenty-five patients have maintained normal red blood cell counts for at least ten months, while taking from nine to twelve capsules a day, indicates that this amount of material furnishes sufficient "active principle" for the treatment of a goodly percentage of persons with pernicious anemia. The data also indicate that the contents of twelve capsules of Extralin administered daily is preferable as a maintenance dose in the majority of patients. As with any type of therapy for pernicious anemia, continued observation of the patients is necessary in order to determine whether the individual is receiving a sufficient amount of the active principle.

The fact that 50 per cent of the patients continue to have subnormal hemoglobin values, although their red blood cell counts have been maintained at normal levels, indicates that iron in large doses should be used in conjunction with the Extralin. Seven of the patients are now receiving iron and ammonium citrate in doses of 45 grains (3 Gm.) a day. Except for one patient, all have shown an increase in the percentage of hemoglobin during the first month on this additional therapy. These patients have not received the iron for a sufficient length of time to determine whether the hemoglobin will return to normal and be maintained at that level. Minot and Castle,[12] Beebe and Lewis,[13] Fouts and Zerfas [14] and others have indicated that in some cases of pernicious anemia the addition of iron to the therapy is highly advantageous.

TABLE 3.—*Average Red Blood Cell Counts and Hemoglobin Percentages of Patients with Pernicious Anemia While Receiving Extralin Therapy and Liver Extract No. 343 Therapy*

		Previous Treatment				Extralin Therapy			
Case	Age	Months	Liver Extract No. 343 Derived from Grams Liver Daily	Average Red Blood Cell Count, Millions per Cu.Mm.	Average Hemoglobin Percentage (Newcomer)	Months	Number of Extralin Capsules per Day	Average Red Blood Cell Count, Millions per Cu.Mm.	Average Hemoglobin Percentage (Newcomer)
1	41	12	200	5.42	99.9	13	9	5.16	93.3
2	52	16	200–300	4.24*	92.1	7	9	4.99	92 0
3	64	..	.....	....	....	13	9	4.91	84.5
4	66	12½	200–400	3.93*	84.2	13	9	4 88	88.7
5	59	..	.....	....	....	8½	9–12	4.13*	76 2
6	57	12	300–400	4.30	74.5	12	9	4.75	75.4
7	63	24	200–300	4.24*	89.0	13	9	4.67	82.5
8	49	12	200–300	4.00*	83.0	10	9	4.90	83.3
9	51	12	200–300	4.82	73.9	12	9–12	4.71	80.3
10	65	12	300	5.39	97.7	13	9	5.12	91.4
11	63	13	300	4.32*	71.4	7½	9	4.53*	80.6
11	63	..	...	....	....	6	12	5.19	74.9
12	65	..	...	....	....	7	9	4 36	78.3†
13	77	12½	300	5.36	10 4	11½	9	5.07	88.9
14	60	13	100	4.55*	92.1	5½	9	5.43	86.0
15	55	13	300	4.58*	80.1	6	3–6	3.46*	82.1
15	..	..	...	....	....	6	9	4.60	91.4
16	49	..	...	....	....	11	9	4.48	81.8
17	60	8½	300	4.82	87.0	10½	12	5.12	89.0
18	64	24	200	4.93	82.1	10	12	5.34	80.5
19	56	13	300	4.99	83.7	10	12	5.21	77.4
20	64	12	300–400	3.97*	71.3	10½	12	4.84	75.6
21	55	13	300	5.12	81.1	13	12	5.01	82.3
22	59	..	...	....	....	12	12	5.19	89.4
23	58	12½	100–200	4.85	91.0	11	12	4.83	83.9
24	44	..	.....	....	....	11	12	5.61	91.7
25	60	..	.....	....	....	7	12–24	4.83	72.8†
26	32	..	.....	....	....	10	12–15	4.79	91.0
27	41	..	.....	....	....	10	12	4.94	61.5
28	57	..	.....	....	....	13	12	4.83	76.1†
29	67	13½	100–600	4.98	101.3	12	12	5.33	95.4
30	60	..	.....	....	....	11	12	4.67	75.5
31	72	..	.....	....	....	8	12	5.55	90.2
32	77	..	.....	....	....	10	12	4.62	81.0
33	47	..	.....	....	....	7	12	5.01	90.6
34	43	..	.....	....	....	11	12	4.85	84.8
35	59	8	100‡	5.50	94.5	5	12	5.62	93.4
36	64	6	100‡	4.17	83.2	9	12	4.82	82.6
37	57	13	100‡	4.62	73.9	6	12	5.09	79.4
38	70	9	100‡	4.93	90.1	6½	12	5.32	89.9
39	74	13½	300–400	4.34*	95.3	11	12	5.14	93.3
40	68	..	.....	....	....	7	12	4 97	81.2
41	63	..	.....	....	....	4½	12	4.82	72.9
42	61	8	100‡	5.19	86.7	5	12	4.86	91.4
43	47	12	200	4.56*	83.5	9	12	4.65	81.9
44	65	..	.....	....	....	5½	12	4.48	90.5
45	72	..	.....	....	....	12	12	4.96	83.9
46	66	12	200–300	4.39*	85.1	6	12	4.85	88.1

* Patients in partial relapse, indicating that the maintenance dose employed was inadequate.
† Patients died during therapy with red blood cell counts at or near normal levels.
‡ Patients given liver extract No. 343 derived from 100 Gm. of liver parenterally per week.

CONCLUSIONS

1. The product of the interaction of subminimal amounts of liver or liver extract and small amounts of hog gastric tissue (Extralin), as described by Walden and Clowes, is highly effective in the treatment of patients with pernicious anemia.

12. Minot, G. R., and Castle, W. B.: Adequate Treatment of Anemia, Ann. Int. Med. **5**: 159 (Aug.) 1931.
13. Beebe, R. T., and Lewis, G. E.: The Maintenance Dose of Potent Material in Pernicious Anemia, Am. J. M. Sc. **181**: 796 (June) 1931.
14. Fouts, P. J., and Zerfas, L. G.: Maintenance Dosage of Liver Extract in the Treatment of Pernicious Anemia, Ann. Int. Med. **6**: 1298 (April) 1933.

2. Twelve capsules of Extralin daily produced a maximal response of the blood and was adequate to maintain the blood at normal levels in the majority of patients.

3. The additional use of iron in large daily amounts is indicated in patients with subnormal hemoglobin values.

Locke and Tenth streets.

ACTIVE IMMUNIZATION AGAINST DIPHTHERIA

A RAPID METHOD WITH A SINGLE INJECTION

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The importance of active immunization against diphtheria in the control of this disease has been amply demonstrated. This fact is well illustrated in a recent report on this question published in the weekly health bulletin of the Connecticut State Department of Health. In 1920, previous to the introduction of active immunization, the incidence of diphtheria for each 100,000 inhabitants of that state was 269.4. In the succeeding years, with a single exception, this rate gradually declined until in 1932 it reached the low point of 15.8. It is estimated that, during this period, 31,511 persons in Connecticut had escaped the disease as a result of the preventive measures which had been taken.

Two preparations have previously been employed: (1) slightly toxic mixtures of toxin and antitoxin; and (2) detoxified toxin or toxoid. The latter has practically displaced toxin-antitoxin mixtures, especially in the immunization of young children. Its advantages over the older preparation are that (*a*) toxoid contains no foreign serum, (*b*) it is stable, (*c*) it is nontoxic and (*d*) it is superior as an antigen.

The technic recommended by the New York City Department of Health originally required three injections of 0.5 cc. each, to be given at weekly intervals. More recently, two injections of 1 cc. each, given two weeks apart, have been recommended. The toxoid contains from 5 to 10 antigenic units per cubic centimeter. The practical advantages in reducing the number of injections while maintaining a high rate of immunization are obvious.

With the toxoid preparation to be described, it has been possible to immunize actively over 99 per cent of the cases in the series with but a single injection. The principle involved is that of continuous antibody stimulation afforded by the slow absorption of small amounts of concentrated antigen.

It has been stated by Glenny [1] that the immunity produced by the injection of an antigen in a nonimmune animal does not depend entirely on the total amount of antigen injected. The time spacing of the stimulus or the continuance of the stimulus is of great importance. If the antigen is rapidly absorbed and eliminated, only slight stimulation may occur even when large doses are injected.

PREPARATION [2]

The material used in this study was prepared in the following manner: Diphtheria toxoid (M. L. D. 500 per cubic centimeter; L + 0.13; L. F. 0.1), 7,300 cc., was placed in cellophane bags and fanned at room temperature until the volume was reduced to 250 cc. The dark colored granular precipitate that formed was removed by centrifugation. The supernatant fluid was diluted up to 730 cc. in the process of twenty-four hour dialysis in a cellophane sac and by the addition of distilled water. Phenol (0.5 per cent) was added and the solution was filtered through a Berkefeld candle. The least fatal dose of the concentrated solution was 0.014 ±.

In a similar way, the solution was further concentrated to 73 cc. (100: 1 concentration). This was preserved, after Berkefeld filtration, with merthiolate in a final concentration of 1: 10,000. This concentrated fluid was found to contain 300 flocculating units per cubic centimeter.

Two batches of the lanolin mixture were prepared as follows: Batch 301-H-11 was made by thoroughly mixing, at 42 C., 100 cc. of sterile hydrous wool fat and 50 cc. of concentrated diphtheria toxoid. One cc. of this mixture thus contained 100 flocculating units and 0.2 cc. contained 20 flocculating units. Batch 301-H-12 was made in the same way as 301-H-11 with the exception that, to each quantity of 0.2 cc. of the mixture, 0.05 cc. of sterile olive oil was added.

The material was received in individual miniature antitoxin syringes, each containing a single dose. The preparation is of the consistency of a soft wax and is easily expelled from the syringe.

ADMINISTRATION AND RESULTS

The air is first expelled from the syringe. Then, under aseptic precautions, the contents amounting to 0.2 cc. or 0.25 cc. are injected deeply into the deltoid muscle with the needle at a right angle to the skin. The intramuscular route is chosen for the same reasons that it is preferred as the site of injection for drugs suspended in oils. If the injection is not delivered intramuscularly, a tiny mass may be felt at the injected site until complete absorption takes place.

The toxoid-lanolin mixture was injected in 103 subjects, all but five of whom were children. The five adults were nurses in training. The ages of the children varied from seven and a half months to twelve years. The largest number were of preschool age. They were selected from the pediatric outpatient department of the Brooklyn Jewish Hospital and so were representative of the poorer class of the city's population. In each case, a Schick test was done on one forearm and a control with heated toxin on the other forearm. The test material used was that regularly supplied by the city department of health and was well within the expiration date printed on the package. Schick and control tests were read on the third to the fifth day. Those showing a positive Schick and negative control were given the immunizing injection.

As it was desired to learn how soon after injection active immunity could be demonstrated, various members of the group were given Schick tests at intervals varying from three to eight weeks. Although the numbers in each group are too small for the percentages to have a statistical value, it is nevertheless interesting to note that active immunity as evidenced by the reversal of the Schick test from positive to negative

From the Department of Pediatrics of the Jewish Hospital of Brooklyn.

1. Glenny, A. T.: The Principle of Immunity Applied to the Protective Inoculation Against Diphtheria, J. Hyg. **24**: 301 (Dec.) 1925.

2. The material used in this study was prepared by Mr. Edwin Voigt of the Lederle Laboratories.

was demonstrated in a large percentage of the cases in from three to four weeks after the single immunizing injection. In one of the adults, the Schick test was negative two weeks after the immunizing injection. Table 1 shows the development of immunity by weeks. Table 2 is a summary of the entire series.

TABLE 1.—*Results Following Single Intramuscular Injection of Mixture of Toxin and Hydrous Wool Fat*

Number Tested	Number of Schick Tests Negative After						
	2 Weeks	3 Weeks	4 Weeks	5 Weeks	6 Weeks	7 Weeks	8 Weeks
4	1	..	..	..	..	..	..
14	..	13	..	..	..	..	..
64	..	..	53	..	..	..	..
15	..	..	..	15	..	..	..
13	..	..	..	..	13	..	..
6	..	..	..	..	..	6	..
2	..	..	..	..	..	..	1

TABLE 2.—*Summary of Results Obtained in One Hundred and Three Patients*

Number Receiving Single Intramuscular Injection of Mixture of Toxin and Hydrous Wool Fat	Schick Negative Within Two Months	Per Cent
103	102	99

Those who still had a positive Schick test two, three or four weeks after injection (fifteen out of eighty-two) were given a Schick test a second time two weeks later and, with a single exception, were then found negative. In the group in which Schick tests were made from five to eight weeks after the immunizing injection, only one out of thirty-six was Schick positive. This one remained positive four months after injection. With the exception of the last case, none were given additional Schick tests more than twice and none were given more than the one immunizing dose. For practical purposes and to obviate the necessity for additional Schick tests, it seems proper that the Schick test be repeated two months after the immunizing injection. Of the 103 cases in this study, 102, or 99 per cent, were Schick negative within two months.

REACTIONS

No reactions were observed in children under five years of age. In the school age group there was an occasional complaint of soreness in the arm for a day or two with slight local redness and, in one case, a temperature of 101 during the first twenty-four hours. In the adult group, five who had positive Schick but negative control reactions were included in the series. They complained only of a heavy feeling in the arm. Five other adults (not included in the series) who gave positive Schick and control tests were given the injection. Of these, two gave severe reactions with a rise of temperature to 102, headache, malaise, a large area of local redness with induration, and regional adenitis. The fever subsided in twenty-four hours. The three remaining persons had mild local reactions without constitutional symptoms. The reactions to be expected, then, are the same as those obtained with ordinary toxoid. They are infrequent and quite mild in older children and absent in those of preschool age. The more severe reactions are to be expected in those patients who give positive reactions to both Schick and heated control material.

SUMMARY AND COMMENT

A concentrated diphtheria toxoid incorporated in hydrous wool fat has been used for active immunization. Immunity was established in 99 per cent of 103 cases within two months following a single injection. It is believed that the slow absorption and elimination afforded by the hydrous wool fat is mainly responsible for the good results obtained. This effect may be obtained in other ways, as for example with alum treated toxoid, as reported by Park and Schroder,[3] who gave three injections of 0.5 cc. each at weekly intervals. Wells, Graham and Havens[4] were able to induce immunity in 94 per cent of ninety-eight children after eight weeks with a single injection of 1 cc. of the alum treated toxoid. There seems to be no doubt that effective active immunization against diphtheria through a single injection is an accomplished fact.

CONCLUSIONS

A concentrated diphtheria toxoid incorporated in hydrous wool fat has been injected intramuscularly and actively immunized 99 per cent of 103 patients within a period of two months. In the majority of cases, immunity developed in from three to four weeks and, in one case, as early as two weeks.

Because of the early development of active immunity, a preparation such as that described may have a practical usefulness in checking an epidemic of the disease. A single injection method has obvious practical advantages.

41 Eastern Parkway.

ACTIONS AND USES OF DINITROPHENOL

PROMISING METABOLIC APPLICATIONS

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We have recently shown in a series of papers[1] that alpha-dinitrophenol markedly augments metabolism in doses which are not demonstrably harmful. As this drug may have a number of important clinical applications, it seems desirable to present a summary report of its pharmacologic and therapeutic effects, and to point out certain potential dangers in, and limitations to, its use.

During the World War, dinitrophenol was called to the attention of French physicians by cases of poisoning from it in munitions factories. Only incomplete investigations of the actions of the compound were made at that time, as judged by published reports. Recently, Magne, Mayer, Plantefol and others[2] have extended or completed work begun some years previously but reported simultaneously with our entirely independent studies. We are in general agreement with them as to the main pharmacologic actions of the drug. The

3. Park, W. H., and Schroder, May C.: Diphtheria Toxin-Antitoxin and Toxoid—A Comparison, Am. J. Pub. Health **22**: 7 (Jan.) 1932.

4. Wells, D. M.; Graham, A. H., and Havens, L. C.: Diphtheria Toxoid Precipitated with Alum: Its Preparation and Advantages, Am. J. Pub. Health **22**: 648 (June) 1932.

From the Division of Neuropsychiatry and the Department of Pharmacology, Stanford University School of Medicine.

Read before the Society for Experimental Biology and Medicine, Pacific Coast Branch, San Francisco, Feb. 8, 1933.

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1. Cutting, W. C., and Tainter, M. L.: Proc. Soc. Exper. Biol. & Med. **29**: 1268 (June) 1932. Tainter, M. L., and Cutting, W. C.: J. Pharmacol., to be published. Hall, V. E.; Field, J.; Sahyun, M.; Cutting, W. C., and Tainter, M. L.: Am. J. Physiol., to be published.

2. Magne, Mayer, Plantefol and others: Ann. de physiol. **8**: 1-176, 1932.

experimental studies have been extended by us and certain possible clinical uses established; summaries of these are given in this report.

GENERAL PROPERTIES

Alpha-dinitrophenol (1-2-4) ($C_6H_3(NO_2)_2OH$) is a yellow crystalline solid, slightly soluble in water, more soluble in alcohol or ether. Solutions may be made up to 3 per cent in water by heating with the addition of

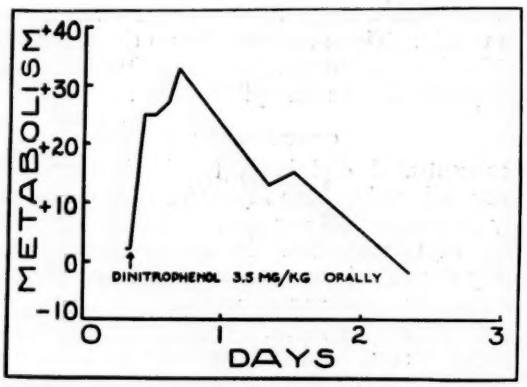

Chart 1.—Effect of a single oral dose of dinitrophenol on the basal metabolic rate.

half the weight of sodium bicarbonate. The melting point is 114 C. It is a dye which is closely related chemically to trinitrophenol (picric acid) and is used as an indicator for hydrogen ion concentrations in the Michaelis technic.[3] The dye is readily obtainable on the market in pure form and is rather cheap, which at once indicates a point of superiority over other metabolic stimulants in general use. We have administered it to patients in gelatin capsules, preferably after meals, to avoid irritation of the stomach. To animals, it may be administered in solution by injection, or gastrically.

PHARMACOLOGIC ACTIONS

When dinitrophenol is given to experimental animals, it causes an increase in metabolism within one minute after injection, or somewhat more slowly when given gastrically. The increase in metabolism with doses of 10 mg. per kilogram or less is about 50 per cent. With higher doses, metabolism may be increased fourfold or more, until the animal produces heat so fast that it may be killed by the resulting fever. Return of the metabolism to normal levels may require from six to forty-eight hours, depending on the dose and the route of administration. The increase in metabolism is due to a direct stimulation of cellular metabolism and is not accompanied by an increase in muscular activity. This tremendous upswing of metabolism is not accompanied by important changes in the circulatory system unless asphyxia results from inadequate oxygenation of the blood. Then there may be acceleration of the pulse and rise of blood pressure. There is, however, a very marked increase in respiration, which may be a response to the increased oxygen need or to carbon dioxide production. The respiratory quotient decreases, indicating that the food used for energy is not entirely carbohydrate but must also include fat or protein. The thyroid and suprarenal glands are not indispensable to the metabolic response, since their removal does not interfere with the drug's actions. However, in diabetic dogs,[4] dinitrophenol has a greatly increased toxicity, for which there is as yet no adequate explanation. Repeated administrations of the drug for from two to three months to dogs in doses just short of fatal have not resulted in significant injury to important organs, as shown by studies of the urine, icteric index, van den Bergh test, and organs at autopsy and tissues microscopically. The details of these and other pharmacologic and physiologic studies are being published in special journals.

CLINICAL ACTIONS

The actions of dinitrophenol in man agree closely with those in animals when equivalent doses are used.

In eight patients, single doses of from 3 to 5 mg. per kilogram of body weight were given orally to determine the effect on the basal metabolic rate. This was increased from 20 to 30 per cent in the first hour and was maintained at this level for about twenty-four hours. Then it gradually began to fall, reaching normal on the third day. Chart 1 shows a typical result after a dose of 3.5 mg. None of the subjects experienced or showed signs of nervousness, anxiety, trembling, hunger or palpitation. Given orally or subcutaneously, these doses caused no changes in temperature, respiration or pulse rate even after two months of daily administration. Single doses between 5 and 10 mg. per kilogram caused no changes in temperature, pulse or respiration but did make the subjects sweat copiously. Three administrations of single doses of more than 10 mg. per kilogram gave increases in temperature of 3 degrees C. or more, in respiration of 15 to 30 per minute, and of pulse 20 to 30 per minute, all commensurate with the pyrexia. The latter doses are considered too dangerous for routine use.

Daily oral doses of from 3 to 5 mg. per kilogram were given to nine patients for periods of from one to ten weeks. In six of these patients the metabolism was determined repeatedly and found to be maintained at an average of 40 per cent above the initial level. When the drug was discontinued, the rate fell to normal by

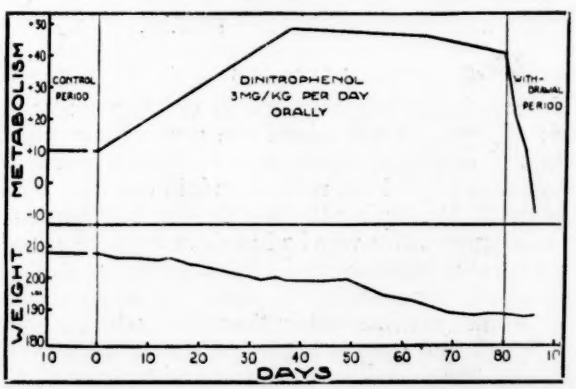

Chart 2.—Effects of repeated daily oral doses of dinitrophenol on basal metabolic rate and body weight, and return of metabolism to normal after administration has been stopped.

the third or fourth day. The metabolic rate and weight changes in one such patient are shown in chart 2.

All these subjects lost body weight without resort to dietary restrictions. The maximum total loss in any patient was 9 Kg. (20 pounds) in ten weeks. The greatest rate of loss was 1.7 Kg. (3 7/16 pounds) a week after a daily dose of 3 mg. per kilogram. The average loss for the entire group was 0.9 Kg. (2 pounds) a week. More vigorous dosing, perhaps combined with

3. Michaelis, L.: Praktikum der physikalischen Chemie, Berlin, Julius Springer, 1926.

4. Tainter, M. L.; Boyes, J. H., and De Eds, F.: Arch. internat. de pharmacodyn. et de thérap., to be published.

dietary control, would probably cause more rapid loss of weight. However, we have not felt justified, from our knowledge of the drug's actions, to induce loss of weight more rapidly. These patients did not suffer from any deleterious symptoms as a result of their reducing treatment. On the contrary, they felt better and more active than before.

COMMENT

Preliminary results indicate that dinitrophenol can satisfactorily increase metabolism for therapeutic purposes in patients. The limiting factor would seem to be the fever caused by the increased heat production. The metabolism has been maintained at a rate 50 per cent above normal for months, with no deleterious symptoms, such as the hyperirritability caused by equivalent doses of thyroid gland. Therefore, dinitrophenol offers this advantage over thyroid. It would appear generally useful for increasing the metabolic rate, experimentally and therapeutically.

Oral administration of the drug to obese patients in daily doses of about 3 mg. per kilogram has resulted in steady reduction of their weight, without demonstrable side-actions. Accordingly, extended trials in this clinical condition are justified. The pharmacologic evidence indicates a usefulness of the drug in hypothyroidism and other states of depressed metabolism.

In view of extended clinical applications which the drug may receive, it is desirable to indicate possible dangers from and limitations to its use. First, continuous administrations in animals and patients have been made for periods not longer than three months, and none have been made in patients with serious disease. Therefore, we cannot be sure that manifestations of toxicity may not appear after more prolonged administration, or in important disease states. Secondly, an increased toxicity of the drug is manifested in the experimental diabetes of dogs, although this may not hold in clinical diabetes. The drug would be of great value in this disease if it would enable the diabetic individual to burn carbohydrates, since it is a powder, readily taken by mouth, with an effect persisting several days after a single oral dose. Any attempt to evaluate its usefulness in clinical diabetes should be undertaken with great caution. Thirdly, excessive doses of dinitrophenol may cause a fatal hyperpyrexia. Finally, the possibility of an idiosyncrasy such as an unusual sensitivity or atypical response to the drug should be kept in mind, although we have not seen unusual reactions. In view of these things, we urge that, for the present, dinitrophenol be used only as an experimental therapeutic procedure in carefully selected patients under close observation by the physician.

CONCLUSIONS

1. Dinitrophenol possesses prompt and striking pharmacologic actions, which are similar in animals and men.

2. The outstanding actions are sustained increases in metabolism and body temperature, enormous activity of all metabolic functions, and fatal pyrexia with excessive doses.

3. Doses within therapeutic range cause in man significant increases in metabolism without fever, which may be useful in treatment of obesity, hypothyroidism and similar depressed metabolic states.

4. There are limitations to and possible dangers from the use of the drug clinically. It should be used only under strictly controlled conditions.

ACUTE EPIDEMIC POLIOMYELITIS COMPLICATING PREGNANCY

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The occurrence of epidemic poliomyelitis during pregnancy raises several questions. How often does it occur? Should the patient go to term and, if she does, what will be the effect on the labor? Will a viable infant be born? If so, what are the probabilities of intra-uterine infection?

There is no unanimity of opinion as to the frequency of poliomyelitis occurring during pregnancy, nor as to the susceptibility of gravid women to the disease. Aycock [1] believes that poliomyelitis occurs more frequently in the latter part of pregnancy than would normally be expected if the condition had not predisposed to the disease. Jungeblut and Engle [2] state that early pregnancy and early infancy are the high-water marks of natural resistance to poliomyelitis. The same authors examined the blood of ten women at various stages of pregnancy and found an apparently higher individual virucidal titer than is commonly found in normal persons. Aycock and Kramer [3] found no greater percentage of immunity among pregnant women than among the urban adults in general. Alpers and Palmer [4] and McGoogan [5] state that poliomyelitis complicating pregnancy is rare.

McGoogan found five cases reported in the literature during the last twenty-five years and adds three of his own, observed in Nebraska over a period of five years. This gives, we believe, the false impression that poliomyelitis complicating pregnancy is extremely rare. Probably many cases observed are not reported. During 1931, three pregnant women with poliomyelitis were admitted to the Willard Parker Hospital (table 1). The total number of patients with poliomyelitis admitted during that year was 1,010. There were thirty over 19 years of age; of these, fifteen were women.

REPORT OF CASES

A summary of the three cases follows:

CASE 1.—D. S., a white primipara, aged 22, was admitted to the Willard Parker Hospital during the ninth month of her pregnancy with a paralytic poliomyelitis of seven days' duration. Her past history was essentially negative. She had uncomplicated measles at 15 years, diphtheria at 17 years and pertussis at 18 years. Her pregnancy up to the present illness had been uneventful. Nine days before admission she had headache, backache, fever and vomiting. Two days later there was weakness of the legs, which progressed to complete paralysis of the right lower extremity and almost complete paralysis of the left lower extremity. The spinal fluid, examined four days before admission was reported as positive for poliomyelitis.

The patient was well developed and well nourished. She complained of backache and pains in the legs and had a little

From the Willard Parker Hospital Department of Hospitals and the Department of Pediatrics, Cornell University Medical College.

1. Aycock, W. L., quoted by Neal, Josephine B.: Poliomyelitis, Baltimore, Williams and Wilkins Company, 1932, p. 416.
2. Jungeblut, C. W., and Engle, E. T.: Resistance to Poliomyelitis, J. A. M. A. **99**: 2091 (Dec. 17) 1932.
3. Aycock, W. L., and Kramer, S. D.: Immunity to Poliomyelitis in Mothers and New-Born, J. Exper. Med. **52**: 457 (Oct.) 1930.
4. Alpers, B. J., and Palmer, H. D.: The Cerebral and Spinal Complications Occurring During Pregnancy, J. Nerv. & Ment. Dis. **70**: 606 (Dec.) 1929.
5. McGoogan, L. S.: Acute Anterior Poliomyelitis Complicating Pregnancy, Am. J. Obst. & Gynec. **24**: 215 (Aug.) 1932.

difficulty in sitting up. There was complete flaccid paralysis of both lower extremities, except for the power to move the toes of the left foot. All deep reflexes of the lower extremities were absent. The superficial abdominal reflexes were present but diminished. Otherwise the neurologic examination was negative. The temperature was 99 F. and the pulse 100. The fundus of the uterus was felt just under the xiphoid process. The fetus was in the left occipito-anterior position, the head not engaged. The fetal heart sounds were of good quality and 120 per minute. The patient expected to deliver in two weeks.

The temperature remained normal. The blood pressure was normal and the blood Wassermann reaction was negative. There was no change in the paralysis during the patient's stay in the hospital. After nine days she was discharged to complete her isolation period at home.

Eleven days after discharge, the patient went into labor and was delivered at the Flushing Hospital. Her obstetrician, Dr. J. C. Cohn, wrote us as follows: "The labor was similar to that of the average primipara. After sixteen hours the head was at the perineum and she was delivered by low forceps to save her the strain of the second stage. Her puerperium was normal and uneventful. The baby was normal, weighed 8 pounds and 14 ounces (4,025 Gm.) and is perfectly well now (at 1 year of age)." Five months after discharge the mother was able to get around unaided and a year later walked with only a slight limp of the right leg.

CASE 2.—F. S., a white primipara, aged 23, was admitted to the Willard Parker Hospital, Oct. 5, 1931, during the fourth month of her pregnancy, with a paralytic poliomyelitis of eight days' duration. Her last menstrual period was June 28, 1931. Her past history was essentially negative. Twelve days before admission she had headache, fever, vomiting and pains in her legs. Four days later there was weakness of both lower extremities.

The patient was well nourished and well developed and did not appear acutely ill. She complained of backache and pains in the legs. There was stiffness of the neck and lower part of the spine. There was marked weakness of all the muscle groups of the right lower extremity. The knee jerk on the right was absent, but the achilles reflex was present. The deep reflexes of the left lower extremity were sluggish. Otherwise, the neurologic examination was negative. The fundus of the uterus was midway between the symphysis pubis and the umbilicus. The temperature was 99 F. and the pulse 100. The spinal fluid was under slightly increased pressure; there were 20 mononuclear cells per cubic millimeter, and the albumin, globulin and sugar content were normal.

During her stay in the hospital she complained at times of backache and pains in the lower extremities. There was some difficulty in voiding during the first few days, but catheterization was not necessary. Constipation was troublesome. There was no apparent change in the paralysis. Her quarantine period was over after ten days in the hospital and she was discharged, as she requested.

She attended the outpatient department of the Misericordia Hospital. Jan. 22, 1932, she had swollen ankles and puffy eyelids, saw spots before her eyes and had a blood pressure of 150 systolic, 114 diastolic. For the next two weeks she was confined to bed. She had vomiting spells for a few days. On February 5, there were no complaints and the blood pressure was 140 systolic, 90 diastolic. Delivery was expected early in April, but on February 21 the patient was admitted to the hospital because of labor pains. The same day the patient delivered a normal female infant weighing 4 pounds and 14 ounces (2,210 Gm.). Delivery was spontaneous after a labor of twenty-five hours. There was no excess bleeding, no instrumentation and no laceration. The infant was discharged well at sixteen days of age with a diagnosis of prematurity. There was no paralysis. The mother was examined at various intervals for six weeks postpartum. Her puerperium was normal and uneventful. She walked with a limp of the right leg. A year later (March, 1933), the family was visited by one of our social workers. She found the mother in good health with a barely noticeable limp of the right leg. Her baby is a well developed and well nourished normal infant.

CASE 3.—D. M., a white primipara, aged 19, was admitted to the Willard Parker Hospital during the second month of her pregnancy with a paralytic poliomyelitis of eight days' duration. Her past history was essentially negative. The beginning of her last menstrual period was nine weeks before admission. Morning nausea had been present for one month.

The present illness began nine days before admission with headache, backache, fever, vomiting and pains in the back of the neck and in the legs. The following day she was unable to walk. The day before admission the spinal fluid was found under increased pressure and contained 50 cells per cubic milli-

TABLE 1.—*Cases at Willard Parker Hospital in 1931*

Case	Age, Years	Number of Pregnancy	Duration of Pregnancy	Paralysis	Delivery	Child	Follow Up: After 1 Year
D. S.	22	First	9 mos.	Both lower extremities	Normal, term	Normal	Mother: Slight limp of right leg Baby: Normal, well developed and well nourished
F. S.	23	First	4 mos.	Right lower extremity	Premature, normal	Normal premature	Mother: Barely noticeable limp of right leg Baby: Normal, well developed and well nourished
D. M.	19	First	1½ mos.	Both lower extremities complete; back and abdomen partial	Abortion at 2 mos. Abortion during 3d month of second pregnancy		

Our first patient developed poliomyelitis at the end of her pregnancy. She came to term, had a normal pregnancy and labor and gave birth to a normal baby. This is similar to the majority of cases reported in the literature. The second patient developed poliomyelitis about the middle of her pregnancy. She had a normal labor and gave birth to a normal premature infant by spontaneous delivery about six weeks before term. The third patient developed poliomyelitis early in her pregnancy—some time during the second month. A therapeutic abortion was performed at another hospital.

EFFECT ON PREGNANCY AND LABOR

Not much information is available on the effect of poliomyelitis on pregnancy and labor. Numerous cases of paraplegia (due to trauma, tumor and the like) complicating pregnancy have been reported in the literature, and a normal labor, frequently painless, has been the rule. These have been reviewed recently by McGoogan [5] and need no further comment here. Williams [6] stated that in women with spinal paraplegias the course of pregnancy is usually uncomplicated, and labor is easy and comparatively painless. Good [7] found that transection of the spinal cord of a pregnant guinea-pig did not interfere with the normal contraction of the uterus following cesarean section.

There are eight cases of poliomyelitis reported in the literature with satisfactory data concerning pregnancy and labor (table 2). In five, delivery was spontaneous and normal at term. One patient had a premature normal labor. Two had cesarean section performed, one because the mother had an ascending paralysis involving the respiratory muscles. Two of our patients delivered normally, one at term and the other six weeks before term. From these data we feel that uncomplicated poliomyelitis (excluding respiratory paralysis) is not an indication for the interruption of pregnancy and that labor will not be affected adversely.

TABLE 2.—*Eight Cases Previously Reported*

Author	Number of Pregnancy	Month of Pregnancy	Age of Mother, Years	Paralysis	Delivery	Child
Schell, J. T.: New York M. J. **83**: 657, 1906.....	Second	7	..	Both lower extremities	Normal term	Normal
Renault and Martingay: Bull. et mém. Soc. méd. d. hôp. de Paris **31**: 344, 1911	Third	5	23	Both lower extremities	Normal term	Normal
Miller, N. F.: J. Michigan M. Soc. **23**: 58, 1924...	Third	3	..	Both lower extremities	Normal term	Bilateral clubfoot, not poliomyelitis
Miller, 1924	First	5	..	Left lower (cystitis)	Cesarean premature (6 mos.)	Dead (no deformity)
Hornung, R., and Creutzfeldt, N. J.: Deutsche med. Wehnschr. **56**: 1470, 1930	First	8	20	Landry's ascending type with respiratory involvement	Cesarean	Normal
McGoogan,[5] 1932	First	3	24	Right lower extremity	Normal term	Normal
McGoogan, 1932	Second	3	32	Hip muscles and bilateral abdominal muscles	Normal term	Normal
McGoogan, 1932	First	3	24	Both lower extremities and right upper extremity	Normal premature (8 mos.)	Premature; died in 48 hours; no deformity

EFFECT ON THE NEW-BORN

In the literature there are reports of eight infants born of mothers with paralytic poliomyelitis (table 2). Five of these were normal and one had bilateral clubfoot (which in all likelihood was not due to poliomyelitis). One infant, delivered by cesarean section before the period of viability, showed no deformity. Another, delivered prematurely, died in forty-eight hours but showed no deformity. Two of our patients delivered normal infants. This gives a total of eight living newborn infants without paralysis; one stillbirth and one death soon after premature delivery were apparently not due to poliomyelitis.

Certain other cases reported in the literature suggest that intra-uterine infection may occur. The pertinent points in each report follow:

Potts [8] reported the case of a man, aged 54, with weakness of both lower extremities and of the left arm and hand which was present since birth, according to the patient as well as his brother and cousin (a physician). The mother was well during her pregnancy except for a fall about the fourth month, which confined her to bed for several weeks. The patient had a 4 plus Wassermann reaction of the blood and spinal fluid. The patient died and from the autopsy the follow anatomic diagnoses were made: meningovascular syphilis, arteriosclerosis and old poliomyelitis. Potts stated that there is no doubt that the patient had poliomyelitis, but it is known that syphilis may cause atrophic paralysis.

McCarthy [9] reported a case of a man, aged 32, who had a left clubfoot, atrophy of the muscles of the limbs and contractures of the hands. The mother had been well during her pregnancy. The patient stated that he was born deformed. Autopsy revealed anterior poliomyelitis of the cervical and lumbar segments of the cord and interstitial neuritis following secondary degeneration of the peripheral nerves.

Lamy's [10] case is that of a man, aged 43, with paralysis of the right leg, which he stated was present since infancy. The man died of carcinoma of the intestine. Autopsy revealed a cortical encephalitis of the left side and marked atrophy of the anterior horn cells in the lumbosacral segment of the cord.

6. Williams, J. W.: Obstetrics, ed. 4, New York, D. Appleton & Co., 1920.
7. Good, F. L.: Pregnancy and Labor Complicated by Diseases and Injuries of the Spinal Cord, J. A. M. A. **83**: 416 (Aug. 9) 1924.
8. Potts, C. S.: Intra-Uterine Poliomyelitis, Arch. Neurol. & Psychiat. **21**: 288 (Feb.) 1929.
9. McCarthy, D. J.: Report of a Case of Prenatal Poliomyelitis, Rep. Henry Phipps Inst. **5**: 437, 1907-1908.
10. Lamy, H.: Sur un cas d'encéphalite corticale et de poliomyélite antérieure associées, Rev. neurol. **2**: 313, 1894.

Fritsch [11] observed a patient, aged 11 months, who was born by breech delivery without medical assistance. The paralysis of all the extremities was reported present at birth. By careful electrical studies of the involved muscles and in view of the symmetry of the muscle hypoplasia (and cord lesion), Fritsch concluded that the diagnosis was poliomyelitis.

Batten [12] observed his patient for the first time at 2 years of age. The mother had been well during her pregnancy. Delivery was normal and lasted only twenty minutes. Shortly after delivery, the infant fell from the bed to the floor. When examined at 2 years of age, the patient had weakness of the right arm, which, according to the history, was present at birth. There was weakness of both legs, which was noticed at 1 year of age, when the child began to walk. At 8 years of age the child died of diphtheria. Autopsy revealed changes due to poliomyelitis throughout the cord.

None of these cases established intra-uterine infection with certainty. In no instance was poliomyelitis diagnosed in the mother during pregnancy. In the first case (Potts) there was a complicating trauma and a syphilitic infection. The history of paralysis at birth in the first three cases was obtained from the patient when he had attained adult life. Data were not available from the attending obstetrician. Without an autopsy in Fritsch's case, injury to the cord (rapid breech delivery) cannot be ruled out. Batten's patient had poliomyelitis, but the time of onset is not certain.

Poliomyelitis may occur early in life. Lewis [13] observed an infant who developed symptoms at 9 days of age and paralysis of one leg three days later. The mother had developed paralysis of one leg on the fifth day post partum. Finkelstein [14] mentioned a case occurring in an infant, aged 12 days. Seven cases in infants under 1 month of age were reported in New York City in 1916.[15] The occurrence of poliomyelitis during the first few months of life is not unusual.[16] It is difficult to exclude infection in early infancy in any of the cases in which the disease is diagnosed later in infancy or childhood.

COMMENT AND SUMMARY

Probably poliomyelitis complicating pregnancy is a more frequent occurrence than one would assume from a review of the literature. Only eight cases have been reported. We observed three cases in one year during which time 1,010 patients with poliomyelitis were admitted to the hospital. Fifteen of these were women over 19 years of age. Contrary to the opinions expressed by other observers,[8] the disease may occur early in pregnancy. As shown in table 2, half of the reported cases occurred during the third month. One of our patients was approximately six weeks pregnant when poliomyelitis developed. The reporting of more cases would help the obstetrician greatly in solving the problems that arise when poliomyelitis occurs. From analogy with other paralytic conditions and from the reported cases of poliomyelitis, it appears that pregnancy and labor will not be affected adversely. In no instance has a mother in whom poliomyelitis developed during pregnancy transmitted the disease to her offspring.

There are cases reported in the literature in which the mother was essentially well during her pregnancy, and there was paralysis, presumably due to poliomyelitis, present in the new-born. In each of these cases either the data are not sufficiently complete or there is some factor which does not permit the acceptance of intra-uterine infection.

531 East Lincoln Avenue — Foot of East Sixteenth Street.

11. Fritsch: Ein Fall von Poliomyelitis centralis, Allg. med. Centr.-Ztg., **57**: 137, 1908.
12. Batten, F. S.: Does Poliomyelitis Occur in Intra-Uterine Life? Brain **33**: 149, 1910.
13. Lewis, J. M.: Personal communication to the authors. Report of case to be published.
14. Finkelstein, H.: Lehrbuch der Säuglingskrankheiten, ed. 3, Berlin, Julius Springer, 1924, p. 137.
15. The Epidemic of Poliomyelitis in New York in 1916, Monograph of the Department of Health, New York City, 376, 1917.
16. Oldt, F.: Poliomyelitis, Ohio Department of Health, Columbus, 1929. Weisenburg: Tr. Am. Neurol. A. **43**: 142, 1918, quoted in Poliomyelitis, Report of the International Committee for the Study of Infantile Paralysis, Baltimore, Williams and Wilkins, 1932. Reference 15.

HYPOPROTEINEMIA PROBABLY DUE TO DEFICIENT FORMATION OF PLASMA PROTEINS

A STUDY OF ONE CASE

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Attention has been repeatedly called to the association of hypoproteinemia with edema. Recently, Peters and Van Slyke [1] summarized the existing information. Hypoproteinemia has been observed repeatedly as a result of excessive loss of protein, decreased consumption of nitrogenous foodstuffs, and increased protein wastage. We are presenting a case with low plasma proteins and with edema which does not appear to be due to any one of these three causes.

A man, aged 51, Irish born, was admitted to the hospital because of edema of the genitalia and lower extremities. He had been treated for six months at the age of 4 years for "dropsy," which disappeared during that period of observation. For many years there was a slight but constant edema of the feet and ankles. The abdomen had been large since early childhood. Ten years before entry, a brownish discoloration, which was followed by some induration, appeared over the anterior surfaces of the lower legs. The swelling of the feet and ankles increased slowly, extending over the lower legs during the past five years. This swelling did not subside with rest in bed. The swelling extended finally, during the three months before admission, over the thighs and to the genitalia. It gradually became more marked until the time of admission to the hospital.

The family history was noncontributory. The past history was entirely negative except for painful, stiff noninflamed joints until the age of 20 and the consumption of about 1½ pints of whisky daily for about twenty years, until four years previous to admission.

The patient was observed in the hospital for eleven months, and during this time he was afebrile. The pulse rate and the respiratory rate remained normal. On entry, the weight was 55 Kg.; the height was 162.5 cm. He was in no discomfort, mentally alert, and quite cooperative. The skin over the tibias had a brownish pigmentation and showed a brawny induration. There was considerable tense pitting edema of the feet, legs, thighs and genitalia. There was no clubbing of the fingers. The mucous membranes were of good color. There was no enlargement of the lymph nodes. The bony framework was normal. There were no tender areas in the skull. The pupils were equal and regular and reacted to light and in accommodation. The examination of the fundi revealed no abnormalities. The thyroid gland was barely palpable and revealed no nodules or irregularities. The chest was well formed and symmetrical. The lungs were normal. The heart was not

From the Thorndike Memorial Laboratory, Second and Fourth medical services (Harvard), Boston City Hospital, and the Department of Medicine, Harvard Medical School.

1. Peters, J. P., and Van Slyke, D. D.: Quantitative Clinical Chemistry: Interpretations, Baltimore, Williams & Wilkins Company, 1931.

enlarged to percussion, which was confirmed by roentgen examination. The heart sounds were well heard; no murmurs were detected. The pulses were equal, regular, synchronous and of good volume. The systolic blood pressure was 110 mm. of mercury; the diastolic, 70 mm. The abdomen was symmetrically enlarged; the abdominal wall was tense. There was no tenderness or spasm. No dilated veins were seen. No masses nor viscera could be detected. Shifting dulness and fluid wave were absent. Except for edema, the external genitalia were normal. Rectal examination revealed no abnormalities. The neurologic examination was entirely within physiologic limits.

The edema decreased during the first two weeks while the patient rested in bed and the fluid intake was restricted. Slight pitting edema over the tibias persisted throughout the eleven months of observation and was present at the time of discharge.

The Kahn reaction of the blood was negative.

Examination of the urine was repeatedly negative. No albumin was demonstrated. The phenolsulphonphthalein excretion following intravenous administration was 40 per cent in the first hour and 10 per cent in the second hour. The dilution-concentration test showed a specific gravity range of from 1.014 to 1.024. These studies did not indicate an impairment of renal function.

On entry, the hemoglobin was 90 per cent (Sahli) and the erythrocytes were 4,950,000 per cubic millimeter. There was no significant change in these determinations during the period of observation. The leukocytes varied between 3,900 and 7,450 per cubic millimeter. The differential counts were always essentially normal. The sedimentation rate of the red blood cells was abnormally slow, less than 1 mm. per minute.

Studies of liver function were made. The venous blood sugar curve after the administration of 1 Gm. of dextrose per kilogram of body weight showed no abnormal tolerance; the blood sugar attained a maximum of 153 mg. per hundred cubic centimeters in thirty minutes from a fasting level of 78 mg. and a minimum of 70 mg. in two hours. Similar studies with levulose, 1 Gm. for each 1.5 Kg. of body weight, revealed a rise of 40 mg. from a fasting level of 73 mg. per hundred cubic centimeters; this pointed toward a decreased tolerance, as a rise of 30 mg. from the fasting level is considered to be the maximum normal rise. A similar decrease in tolerance for galactose following the ingestion of 40 Gm. was indicated by the urinary excretion of 4 Gm. in the five-hour period; the maximum normal excretion expected is 3 Gm. As is to be expected normally, there was no retention of bromsulphalein thirty minutes after intravenous injection. The icteric index was 2, which is abnormally low and suggests that pigment formation is impaired. Likewise, the bilirubin was less than 1 mg. per hundred cubic centimeters.

Amyloid disease was not indicated by the removal of only 29 per cent of congo red from the serum in one hour.

The investigation of the cardiovascular system revealed normal blood gases, and the circulation time and the cardiac output were within the limits of normal.

Serologic and chemical studies of the cerebrospinal fluid gave normal results. The total proteins were 11 mg. per hundred cubic centimeters; the chlorides were 702 mg. per hundred centimeters as sodium chloride.

A roentgen examination following a barium enema revealed only a spastic colon; the arteries of the legs showed deposits of a moderate amount of calcium.

Fasting gastric contents revealed no free acid. After the administration of histamine the gastric juice contained 36.0 units of free acid. The pepsin content of both specimens was normal.

The basal metabolic rate was + 9.0 per cent.

Serum calcium and phosphorus were found to be 7.9 mg. and 3.6 mg. per hundred cubic centimeters, respectively, values which are consistent with the lowered plasma proteins. The cholesterol of the blood was in the lower limits of normal, 89 and 96 mg. per hundred cubic centimeters on two occasions, several months apart. Blood chlorides as sodium chloride were within the range of normal, 462 mg. per hundred cubic centimeters. The colloidal osmotic pressure of the serum was found to be 15 cm. of water. The plasma protein, as determined by the Kjeldahl method, on oxalated plasma, was 3.6 Gm. per hundred cubic centimeters, and the albumin-globulin ratio determined by fractional precipitation with a solution of potassium phosphates was 60/40. The ingestion of a diet containing 180 Gm. of protein daily for eight weeks did not alter in the least the plasma proteins or the albumin-globulin ratio. Unfortunately, a determination of the fibrinogen was not made.

Studies of the nitrogen metabolism were also made. The partition of the blood and nonprotein nitrogen of the urine and the nitrogen of the feces were determined when the daily diet contained 60 Gm. of protein and again when the protein intake was 180 Gm. daily. During the period of the 60 Gm. protein intake, pepsin, 10 Gm. daily for a period of six weeks and later trypsin, in similar amounts for two weeks, were given without producing any significant alteration in the nitrogen metabolism. The stools showed no measurable increase in nitrogen between the low and the high protein diet. The loss of nitrogen in the stools was not more than from 1 to 2 Gm. a day.

Values of the Constituents of the Nitrogen Partition of the Blood and Urine

	Blood, Mg. per Cent						Urine, 24-Hour Specimen											
							Grams						Per Cent Total Nitrogen					
Date	Total Plasma Protein, Gm. per Cent	Total Nonprotein Nitrogen	Urea Nitrogen	Total Creatinine Nitrogen	Amino-Acid Nitrogen	Uric Acid Nitrogen	Total Nitrogen	Urea Nitrogen	Total Creatinine Nitrogen	Amino-Acid Nitrogen	Uric Acid Nitrogen	Ammonia Nitrogen	Urea Nitrogen	Total Creatinine Nitrogen	Amino-Acid Nitrogen	Uric Acid Nitrogen	Ammonia Nitrogen	Protein Intake per Day, Gm.
August 11.....	3.6	....	.....	....	....	....	.....	.....	.....	.....	.....	.....	.....	....	....	....	....	180
September 13.....	3.3	31.2	8.83	1.51	6.51	1.04	9.640	7.600	0.372	0.405	0.135	0.603	79.80	3.87	4.20	1.40	6.28	180
October 24.....	3.8	33.7	11.50	1.75	7.18	0.86	10.220	7.350	0.310	0.294	0.126	0.621	72.30	3.04	2.88	1.23	6.08	60
January 5.....	3.3	34.3	10.00	2.71	7.18	0.86	8.590	6.645	0.327	0.278	0.125	0.468	77.40	3.81	3.23	1.45	5.45	60
January 16.....	3.9	32.6	8.30	3.40	8.14	0.78	7.430	5.320	0.359	0.302	0.078	0.289	71.60	4.83	4.07	1.05	3.89	60
January 30.....	4.0	35.3	15.00	2.50	6.51	0.75	12.260	8.680	0.261	0.439	0.123	0.707	70.80	2.13	3.58	1.00	5.76	180
February 16.....	3.8	33.3	20.80	2.71	7.52	0.90	9.120	6.740	0.330	0.238	0.097	0.912	74.00	3.62	2.61	1.06	10.00	180
Normal range.....	6-8		9.0-15.0	1.4-2.0	5.0-6.5	0.6-1.0	.....						82-89	3.2-6.3	1.0-4.5	0.8-1.8	3.2-5.0	

The accompanying table gives the values for the various constituents of the nitrogen partition of the blood and urine. The values termed the normal range indicate the limits of variation obtained by the methods employed in this investigation.

The amino-acid nitrogen of the blood varied between 6.51 and 8.14 mg. per hundred cubic centimeters, remaining above the normal level constantly. The urinary ammonia nitrogen likewise remained elevated, varying between 6.28 and 10.0 per hundred cubic centimeters of the total nonprotein nitrogen. The changes in the remaining nitrogen partitions of the blood and urine were such as would be expected to follow a high and low protein diet.

During the entire period of observation, the plasma proteins varied between 3.4 and 4.0 Gm. per hundred cubic centimeters, considerably below the normal level. The protein deficiency was proportionately distributed between the albumin and the globulin fractions.

COMMENT

It appears that the patient had no difficulty in the digestion and absorption of protein, as evidenced by his urinary and fecal nitrogen excretion and by the effect of changes in diet as reflected in the nonprotein

nitrogen partition of the blood. There is no evidence suggestive of renal disease or of increased protein wastage.

This degree of hypoproteinemia with a normal albumin-globulin relationship is unusual. Such inorganic constituents as have been determined in the patient, chlorides, calcium and phosphorus, do not indicate an alteration in the inorganic constituents of the blood. The cholesterol values are in the lower range of normal. The essential abnormality seems to be in the mechanism of synthesis of plasma proteins. This is emphasized by the failure of protein feeding to influence the level of the plasma proteins.

The origin of the plasma proteins is poorly understood. The weight of the evidence at hand indicates that fibrinogen is formed in the liver and that the liver, intestinal wall and the blood-forming organs are probable sites of origin for other plasma proteins.[2] It is of interest to note that in this patient a disturbance in liver function is suggested by the somewhat decreased galactose and levulose tolerances and by the elevated blood amino-acid nitrogen. It is conceivable that the defective formation of plasma proteins here is due to altered liver function.

SUMMARY

The hypoproteinemia in a patient with chronic edema, low plasma proteins and reduced colloid osmotic pressure was uninfluenced by protein feeding. The observations made seem to indicate a deficiency in the formation of plasma proteins.

ERYTHREMIA

A THERAPEUTIC SUGGESTION

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Erythremia (polycythemia vera) is generally considered a primary disease of the hematopoietic system, of unknown etiology. Despite the great increase in the number of the erythrocytes in this disease, immature cells in the peripheral blood present evidence of increased activity of the bone marrow, an appearance usually associated with anemia. The occurrence of polychromatophilia, of normoblasts and of myelocytes in the blood cannot be explained satisfactorily in any other way.

Studies have shown that the stomach of man and of dogs secretes a substance which may be recovered in a form suitable for intramuscular injection and which is a powerful stimulant of marrow activity in pernicious anemia.[1] From the stomach contents of swine and cattle, obtained immediately after slaughtering, a similar, probably identical, substance has been obtained. This substance is dialyzable through collodion and withstands esterification, properties that would seem to remove it from the enzymes. It is probably a hormone, for which the name "addisin" has been proposed.

As pernicious anemia appears to be due to a lack of secretion of addisin, it seemed theoretically possible that erythremia may be the result of hypersecretion of addisin or of hypersusceptibility of the marrow to it.[2] A similar hormone theory has been advanced by Hurst[3] and by Tuchfeld,[4] independently.

In a patient with erythremia, having 8.9 million red cells, addisin derived from 1,250 cc. of the gastric contents of swine was injected intramuscularly. On the fifth day following the injection, the reticulocytes, which had been in the neighborhood of 1 per cent, rose to 2.5 per cent, or from 89,000 to 212,000 per cubic millimeter. Coincident with this reaction, an occasional normoblast was found in the blood and erythrocytes containing minute nuclear particles, which were absent or nearly so (270 per cubic millimeter), rose to a maximum of 14,700 per cubic millimeter on the sixth day, followed by a rapid fall. On the ninth day after the injection, a differential count showed 1 per cent myelocytes. These results indicate clearly a response of the bone marrow to stimulation by addisin, despite the polycythemia.

Another fact in support of this theory was presented by the same patient. He had suffered from duodenal ulcer and, on advice of his physician, he passed a stomach tube and washed his stomach three or four evenings a week for a period of six months. During this time, without other treatment, the red cells decreased steadily from 10.0 to 5.3 million. The lavage was then discontinued, and the count gradually increased to 10.2 million at the end of five months. It seems quite possible that the improvement noted was due to mechanical removal of an appreciable quantity of addisin with a corresponding decrease in stimulation of the bone marrow.

A Comparison of Erythremia and Pernicious Anemia in Relapse

	Erythremia	Pernicous Anemia
Bone marrow	Normoblastic	Megaloblastic
Color index	—1	+1
Red cells		
(a) Number	Polycythemia	Anemia
(b) Production	Increased	Decreased
(c) Maturation	Normal	Defective
(d) Polychromatophilia	+ or —	+ or —
(e) Nucleated	Normoblasts	Megaloblasts, normoblasts
(f) Diameter	— or normal	+
(g) Volume	— or normal	+
White cells		
(a) Number	+ or normal	Leukopenia
(b) Neutrophils	+	—
(c) Myelocytes	+ or —	+ or —
Platelets, number	+ or normal	—
Blood serum, bilirubin	Normal, rarely +	+
Achylia gastrica	—, rarely +	+
Urine, urobilin	Normal, rarely +	+
Skin, color	Cyanosis	Pallor, lemon yellow
Mucous membranes	Red cyanosis	Pallor
Splenomegaly	+ or —	— or +
Familial	— or +	— or +
Treatment	Remove addisin or lessen its secretion	Supply addisin

Examination of the sources of hematopoietic substances effective in pernicious anemia discloses a high purine content (liver, kidney, stomach, nucleic acid). Should the diseases pernicious anemia and erythremia represent in reality anaddisinism and hyperaddisinism, as seems theoretically possible (like myxedema and hyperthyroidism, for example), there would seem to be the possibility of controlling erythremia by means of dietary measures. For this purpose, a low purine diet continued over a long period of time, with careful study of the blood, is suggested.

As erythremia is a comparatively rare disease, this suggested treatment cannot be observed in any one clinic

2. Howe, P. E.: The Function of the Plasma Proteins, Physiol. Rev. **5**: 439 (Oct.) 1925. Wiener, H. J., and Wiener, R. E.: Plasma Proteins, Arch. Int. Med. **46**: 236 (Aug.) 1930.

From the Department of Internal Medicine, University of Cincinnati College of Medicine, and the Medical Clinic, Cincinnati General Hospital.

1. Morris, R. S.; Schiff, Leon; Foulger, J. H.; Rich, M. L., and Sherman, J. E.: Treatment of Pernicious Anemia, J. A. M. A. **100**: 171 (Jan. 21) 1933.

2. Morris, R. S.; Schiff, Leon, and Foulger, Margaret: J. Med. **13**: 318 (Aug.) 1932.

3. Hurst, A. F.: Guy's Hosp. Rep. **76**: 287 (July) 1926.

4. Tuchfeld, Fritz: Med. Klin. **27**: 130 (Jan. 23) 1931.

in a sufficiently large number of patients to be of value. I have started one patient on this diet and have suggested its trial in two others. This note is published in the hope that the plan may appeal to others as worthy of trial, so that evidence pro or con may be accumulated.

TUBERCULOUS FISTULA IN ANO

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For years it has been taught by various clinicians and writers on tuberculosis that a tuberculous fistula should not be operated on, that, after operation, it is more apt than not to recur, and that if it remains healed the pulmonary disease, if latent, is often activated and, if active, is frequently made worse. Although proctologists for a number of years have operated on tuberculous anal fistulas and obtained favorable results, the beliefs enumerated are widely held and perpetuated in recent publications. It is the repetition of traditional error. One might almost suspect some of the ideas of having survived the era of the humeral theory, when it was feared to stop a discharge in one place lest this dam back the humors, which would break out anew elsewhere.

Tuberculous fistulas will heal after adequate operation if reasonable care is given to the pulmonary disease. For several years I have been performing fistulectomy on patients having tuberculosis, in many cases even in the advanced stages. The removal of a suppurative focus benefits the patient; this is especially true if the area of suppuration is fairly large, as it often is in these patients. Toxemia is reduced and the patient is made more comfortable and rests better. The importance of the elimination of an area of suppuration in an already handicapped patient needs no emphasis. And, if brief, fistulectomy carries out one of the cardinal tenets of present day therapy in the disease; i. e., the elimination of tuberculous or nontuberculous complications to focus healing ability on the pulmonary lesion.

These convictions have been reached over a period of several years while I was caring for patients at the Chicago Municipal Tuberculosis Sanitarium. Recently, a study was made of seventy-five fistulectomies which I have performed in the last five years. Some of the facts brought out in this investigation are of interest.

AGE AND SEX

The ages of the patients ranged from 13 to 74 years. The greatest incidence was in patients aged from 20 to 40 years; the next highest incidence was in the following decade. Only four were under 20 years of age. The age incidence approximated that of pulmonary tuberculosis. There were twenty-two women and fifty-three men, 30 and 70 per cent, respectively. The greater incidence in males is common in fistula in ano of any type; nontuberculous fistula is much more common in males.

PULMONARY DISEASE

All the patients had pulmonary tuberculosis and with two exceptions such disease was active. On admission, twenty-eight were classified moderately advanced B cases and twenty-six far advanced B cases; twenty-one fell among the other classifications. On discharge, the classification was more diverse; more patients were included in the moderately advanced A and B groups and in the far advanced A and B groups, and seven were classified as far advanced C cases, although no cases in the C group were admitted.

TYPE OF PATIENTS

The patients admitted to the sanatorium are not chiefly the ones with old chronic fibroid lesions. The pulmonary types are a mixture of the exudative and proliferative disease and not the progressive chronic proliferative type chiefly seen in custodial institutions. The former are the types seen in active practice, requiring active therapy or requiring care in sanatoriums conducted on a modern treatment basis. Admission to the sanatorium is based chiefly on the tuberculous lesion being sufficiently limited or early, so that improvement or an arrested process is possible with well regulated institutional care. In a word, the majority of the patients are of the sort seen in general practice.

LENGTH OF TIME IN SANATORIUM

The yearly admission is about 2,000 and the average enrolment is 1,225. The average stay in the hospital varies from year to year; in the last five years it has varied from 344.1 days to 276.6 days. One third of the seventy-five fistulectomy cases were hospitalized less than a year. The time at the sanatorium of the whole group varied from 60 to 874 days, the average being 252 days.

DURATION OF FISTULA

Sixty-three patients (84 per cent) had pulmonary tuberculosis from a few weeks to thirteen years before the fistula occurred; ten patients (13.3 per cent) had the fistula before a diagnosis of pulmonary tuberculosis was made. It had existed in these cases from twenty-one years to two months: One had the fistula twenty-one years; one, six years; one, five years; two, four years; one, three years; one, one year; two, six months, and one, two months. Tuberculous granulation tissue was not found in any fistula over five years old. Whether the process was originally tuberculous cannot be determined. Of two four year old fistulas, one was tuberculous, the other not; a three year fistula was tuberculous, as was one a year old; two six months old fistulas were nontuberculous, and one two months old was tuberculous. Much has been written about primary tuberculous anal fistula. With such variation in duration and type in our cases, generalizations are of little moment. It is rare in our experience.

PATHOLOGIC STUDIES

A diagnosis of tuberculous fistula is based on the finding of tuberculous granulation tissue on microscopic examination. Fifty-six per cent of the cases in this series showed such tissue on the usual pathologic examination; a further investigation was made of tissue from the last nineteen fistulectomies performed in 1932. Between 200 and 300 sections were made serially of each specimen and all examined for characteristic granulation tissue. Two cases (16 per cent) previously reported negative were found to present tuberculous tissue. If this average prevailed in the preceding four years, and such an assumption is reasonable, the total incidence of tuberculous fistula in patients having pulmonary tuberculosis in our series is 72 per cent.

The tissue submitted to the laboratory is not the fibrous wall of the collapsed abscess cavity or infected

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From the City of Chicago Municipal Tuberculosis Sanitarium and the Loyola University School of Medicine.

tract but the gelatinous granulation tissue that lines the cavities or tracts. Giant cells, tubercles and other characteristic structures are found in this tissue when the fibrous wall shows nothing significant. After the fistula has been opened, these granulations are simply scraped out with knife or gauze and placed at once in physiologic solution of sodium chloride and sent to the laboratory. Care in providing the pathologist with live granulation tissue is important; however, this cannot always be done, for in some tracts there is even very little necrotic granulation tissue to be obtained. In two cases, clinically tuberculous, only repeated laboratory investigations demonstrated tuberculous tissue.

THE PATHOLOGIC DIAGNOSIS OF RECTAL FISTULAS

H. C. Sweaney says:

The diagnosis of tuberculosis in fistulas of the anus and rectum depends entirely on the histopathological findings, because the gross, the clinical, and the bacteriological findings are indefinite or of no value. The histopathological diagnosis depends upon the time honored presence of tuberculous granulation tissue [fibroblasts, capillaries, fibrin, lymphocytes, etc.] with the Langhans type of giant cell; characteristic tubercle formation with necrotic center; fibroblastic capsule and monocytic and lymphocytic infiltration.

Inasmuch as the microscopic diagnosis of tissue from rectal fistulas in our institution has run less than 60 per cent positive for tuberculosis in the last five years [exclusive of 1932] it is pertinent to make an inquiry into the causes of such low findings, especially since the great majority are considered to be, and most likely are tuberculous. It must not be inferred from this, however, that all anal fistulas are tuberculous. There is no reason why other infectious agents may not cause ulcers in this region.

Like most analytical procedures the problem may be considered from the standpoint of the sampling, and the examination.

The "sampling" or taking of specimens, depends upon the individual clinician and the character of the fistula. He may take only a small tag of tissue or dissect out the entire tract. In the complete dissection only superficial tissue may be removed or the entire layer of granulation tissue may be taken. In removing sloughs or tags of tissue there is the greatest likelihood of error, and as I review our sections, it is this type in which we have had most of our negative findings. The tissue is usually necrotic with nothing left but the original stroma outlining the intestinal glands at one end of the tract and a few extinct capillaries in the old granulation tissue. The staining is usually a pale blue, showing that there is only acid-bearing tissue present. Even the usual pink of tuberculous caseation is absent. Here one may find the hull of an old giant cell and characteristic granulation tissue, but frequently the disintegrating intestinal glands will resemble a giant cell, so it is risky to make a diagnosis in such findings even though one may have the feeling that it is tuberculous. In such tissue there would be little gained in making serial sections, because the tissue is uniformly necrotic. It is always advantageous to take some live granulation tissue for section or remove the whole ulcer, in which cases the burden falls on the pathologist. Where there has been live granulation, the diagnosis has usually been easy in our routine examination, which consists in the mounting of 3-6 paraffin sections taken at intervals. In negative cases, especially where the tissue is suspicious, complete serial sections are indicated.

Apart from the sampling and the conditions just referred to, however, there are times when the findings—either negative or positive—may not be accurate.

On the one hand, granulation tissue of any chronic nature, may simulate tuberculosis. Even the giant cells may be found. Syphilis is one of several such chronic granulomas. The giant cell is a foreign body reaction—a reaction against an indigestible substance whether it is wax, wood, caseum, cholesterol or other such inert material. As some such substances may be present, there is always the possibility, although rarely, of confusing them with tuberculosis. There are, however, peculiar characteristics of the giant cells of tuberculosis that are rather definite—their fulness, the pink centers, the vigorous cells arranged in a semicircle, etc.

On the other hand there may be tuberculous fistulas and ulcers that do not reveal a single giant cell even on serial section. Whether this is due to the type of bacillus, to the reaction of the host, or to an overgrowth of secondary organisms, is problematical. There is no doubt but secondary overgrowth will change the picture to a marked degree. I have serially sectioned ulcers that have only shown the characteristics of subacute abscess that were undoubtedly tuberculous, because the gross characteristics, the surrounding ulcers, and all other factors were typically tuberculous. I have seen hyperplastic tubercles showing only fibroblasts, monocytes, etc., without any giant cells at all. To make a diagnosis, however, on characteristic granulation tissue alone is risky, because I have seen chronic infections with Friedländer's bacillus simulate tuberculous granulation tissue, except there were no giant cells.

With careful, repeated, or complete sampling, with serial sections, and with careful study, however, over 75 per cent in tuberculous patients should be found tuberculous. No doubt, all but an insignificant minority are tuberculous.

INCIDENCE OF TUBERCULOUS FISTULA

Seven per cent of the patients at the Municipal Tuberculosis Sanitarium have anal fistula. Only a very small number of the anal fistulas in my private practice are demonstrably tuberculous. The number varies from year to year, but from 3 to 5 per cent is the maximum. Consequently, I cannot think that an anal fistula is a common indication of pulmonary tuberculosis. Most of the anal fistulas in the tuberculous patients are tuberculous, but very few of all anal fistuas are tuberculous in this portion of the United States. However, Miles reported two years ago that about 14 per cent of anal fistulas are tuberculous.[1] The material of some foreign authors probably differs from ours and justifies other conclusions. There is no excuse for foregoing a careful chest examination of the patient having a fistula, even if the incidence here is relatively low. Error is possible even after careful investigation, as has been shown. It is courted in the exceptional case; that is, in from 3 to 5 per cent if physical examination is indifferent or incomplete. Medico-actuarial statistics show that a sufficient number of patients who have or have had anal fistula do develop pulmonary tuberculosis to compel insurance companies to inquire carefully into the character of fistula in their clients, especially if they are 15 per cent or more underweight.[2] Although not many of all fistulas are tuberculous, the relatively high incidence of it in the tuberculous must be considered.

Symptoms depend on the extent and character of the infected tract. If it is short and rather superficial, a thin purulent discharge only may be present. When it is larger and deeper and more tissue is involved, toxemia, local discomfort or soreness, and a free purulent discharge may exist. When the external orifice becomes blocked, pain and swelling develop. In a blind internal fistula (internal sinus) this occurs when the internal orifice is blocked. Some fairly large or large and deep tuberculous abscesses develop without much pain, but it seems to me that the painlessness of perianal and perirectal suppuration in the tuberculous patient has been overemphasized. They are generally painful in my experience.

The diagnosis is important before an effective operation can be done. An anal fistula usually arises from a

1. Miles, W. E.: Anorectal Fistulas: Their Classification, Pathology and Treatment, Practitioner **126**: 501-536 (May) 1931.
2. Fansler, W. A.: The Relationship of Tuberculosis to Fistula in Ano, J. A. M. A. **85**: 671 (Aug. 29) 1925.

crypt infection. The crypt becomes infected, the inflammatory process extends through the bowel wall and an abscess forms. This may rupture within the bowel or on the skin, or the abscess may be incised through the skin. Thus an infected tract is left: a complete fistula with both internal and external openings, a blind internal fistula (more accurately a perianal or internal sinus) with only an internal orifice or a blind external fistula (external sinus) with only an external orifice. Fistula may, rarely, follow trauma, e. g., a kick or fall on the buttocks, and a subcutaneous fistula may develop from a thrombotic external hemorrhoid; a tuberculous coccyx or sacrum may cause a perianal fistula, or it may arise from a stricture a few inches up in the rectum. A periprostatic or suburethral abscess may drain through the perineum. But the primary infection in the vast majority of cases is in a crypt, at the junction of the skin with the mucosa; the pathologic sequence is that already stated. This deserves emphasis and it is of great importance to keep this in mind when looking for the internal opening. Success depends on laying open the whole infected tract or tracts, particularly the internal orifice. The latter is nearly always in a crypt. A flexible silver probe, made by "beading" 19 and 21 gage silver wire by holding the ends a moment in the flame of a Bunsen burner, is very satisfactory for exploring the fistula. If the internal orifice cannot be found with this, one of the dyes, gentian violet or methylene blue, may be used. I prefer bismuth paste, 1 part of bismuth subnitrate to 2 parts of petrolatum (Beck's paste), as it is cleaner and just as effective. In a few instances it is helpful to inject the tract with iodized poppy-seed oil or bismuth paste and have a roentgenogram made. This procedure is overdone; it is only rarely helpful or necessary. If the examination is painful, it is advisable to wait at times until the patient has been given a local anesthetic before the diagnosis is completed; in this case, fistulectomy is done under the same anesthesia. In any event, an accurate diagnosis is essential before operation.

CHARACTERISTICS OF TUBERCULOUS FISTULA

A fistula is considered grossly tuberculous when the skin orifice is large or gaping, the edges are undermined and cyanotic and the tract is much more patulous, "eaten out," than in the ordinary type.

INDICATIONS FOR OPERATION

Some small anal fistulas give very little trouble to the patient and may be safely left alone. It is not my experience that any great number heal spontaneously, as some hold, but a small fistula does not demand operation. I see relatively few of these. Most of my patients have a fistula of moderate size, a fair proportion of large size, and these are causing pain or discomfort. Most of them contain enough pus to act as a serious focus of infection.

Certainly a fistulectomy is merely an incident in the management of the pulmonary disease. In some terminal cases the patients are made much more comfortable by the operation. It may be inadvisable for a time, in a moderately advanced case, because of the activity of the disease in the lungs or elsewhere. Decision is based on a consideration of all the aspects of the case. Briefly, a perianal abscess requires incision and drainage as soon as it is diagnosed. The opening is kept patent by swabbing the tract daily or two or three times a week. Adequate drainage is maintained and thus the formation of new tracts is avoided. Some cases heal without further treatment. Fistulectomy is performed when the infected tract persists and when the patient's condition permits. In Fansler's [3] series of 101 cases, 90 per cent healed after fistulectomy, whereas 65 per cent of the patients not operated on (twenty-three cases) were unimproved or died.

ANESTHESIA

In most cases the injection of 35 cc. of a 1 per cent solution of procaine hydrochloride in the sacral canal and 10 cc. in each second sacral foramen is used. In the unusual instance in which this did not afford complete anesthesia, the third or fourth or both foramina on the incompletely anesthetized side were injected. Caudal block and some perianal infiltration with a 0.5 per cent solution of procaine hydrochloride was done in cases in which the time could not be taken with the procedure described. Fifteen patients were given a low spinal analgesia, 50 mg. of procaine crystals dissolved in cerebrospinal fluid or 1 cc. of a proprietary procaine mixture being used. I prefer the transsacral and caudal anesthesia in this work, but there were no unfavorable reactions with the spinal analgesia; they are not to be expected with the small amount of drug used.

Sodium amytal, 1½ grains (0.1 Gm.), is given the night before operation, 3 grains (0.2 Gm.), one and a half hours preoperatively and one-sixth grain (0.01 Gm.) of morphine sulphate fifteen minutes preoperatively.

OPERATION

A barium or bismuth paste was frequently although not usually injected through the external orifice to identify the tract and internal orifice. Often this is not necessary. Filiform bougies or flexible wire probes, gage 19 to 21, may suffice. Accurate identification of the internal orifice is essential; the fistula will recur or, what more often happens in these cases, the wound will not entirely heal if the internal orifice remains. If there is no internal opening, that is, if the fistula is incomplete, only confusion, if nothing worse, is caused by making one. This can readily be done with the stiff wire probes used by many surgeons and found in many hospitals. There is no advantage in cutting the sphincter ani to incise a normal crypt, even when the tract seems to end at this crypt. But in some cases the internal orifice has healed or inflammation has extended through the bowel wall at this crypt site. If there is a nodule of scar tissue in the crypt or the crypt is obviously deformed from previous inflammation, the incision should be extended through the sphincter to the crypt and the crypt excised. Chronically inflamed tissue at the upper extremity of a fistulectomy wound will delay or prevent healing in tuberculous cases.

When this work was started five years ago, the cautery was used as a routine. The thought was that the lymphatic and in back of this the fibrous tissue reaction was the barrier to the extension of tuberculosis here as elsewhere and that the knife would open up new channels for extension of the infection. Comparing results of operation by the two methods, scalpel or cautery, better results were had in the former. The radio knife was used in some cases. In the last three years the ordinary knife or scissors have been used; dissection is accurate and the wound heals satisfactorily afterward.

After the tract and its lateral extensions, if present, have been opened, it is wiped out with gauze to clean out débris and granulations; when the latter are quite adherent, they are cleaned off the fibrous tissue with the

3. Petter, C. K., and Fansler, W. A.: Minnesota Med. **14**: 622 (July) 1931.

scalpel. Overhanging skin edges are trimmed off, "unroofed" to provide for adequate drainage by converting the tract into a V shaped gutter. Hemostasis is secured and iodoform gauze is placed in the wound. Not all fistulas have a firm fibrous tissue wall; if they do, the wall is not scarified as in the usual fistulectomy; if they do not, care is taken to avoid undue traumatization of the tract when it is cleaned out.

If the orifices are eliminated and the tract is well and completely opened and given proper postoperative care, these wounds heal. Even if the fistulas are multiple and the tracts tortuous and extensive, as a number of these were, healing occurs.

RATE OF HEALING

Some wounds are completely healed in from two to three weeks. These are usually nontuberculous tracts or appear in patients with lung disease which is not very active. The wounds ordinarily heal slowly. The average rate is several times as long as in a nontuberculous patient. The majority of wounds are healed in four months, a number are not entirely healed before six months, and a few for a longer period. One coincident with pulmonary disease which was very active for a time healed slowly over a period of a year and a half. These wounds cannot be expected to heal as readily as a wound in a healthy subject: the patients have an exhausting disease; the reparative power of the tissue is less than normal. If one is certain that the operation has been adequately done, a complete repair may be confidently anticipated. Patients in the terminal stages are excepted. Ten patients died before their wounds were entirely healed, but except in two of these, wound healing was progressive, although the pulmonary disease was advancing. In eight cases healing was well advanced at the time of death. The wounds healed completely in 87 per cent of our cases.

POSTOPERATIVE REACTION

Sixteen patients (20.1 per cent) were made temporarily worse by the operation; that is, there were increased pulse rate, increased fever or the occurrence of fever in a previously afebrile patient, increased pulmonary disorder or other evidences of an unfavorable reaction, for periods of from a few days to two weeks. Very few had a marked reaction and these were practically all in large fistulas in advanced cases. Even in this group, the permanent results are good. No patient was made permanently worse by fistulectomy.

GAIN IN WEIGHT

No marked gain in weight occurs in some cases, but a gradual improvement generally follows. A gain of from 5 to 10 pounds (2.3 to 4.5 Kg.) was made in the majority within a six month period after operation; eight gained 15 pounds (6.8 Kg.), and four, 20 pounds (9 Kg.) in this time.

RESULTS OF OPERATION

It is a striking fact that the patient is usually made definitely more comfortable by the operation. The general improvement noted is undoubtedly due to (1) elimination of a focus of suppuration, and (2) increased relaxation and rest by the removal of a source of irritation or pain.

CONCLUSIONS

1. Because of a traditional belief that they should not be operated on, anal fistulas in tuberculous patients are often neglected.

2. In this series, 56 per cent of anal fistulas in fifty-five patients having pulmonary tuberculosis were proved tuberculous; 72 per cent of twenty cases in 1932 were proved tuberculous, by more detailed investigation. That something more than 72 per cent are tuberculous is probable. Seven per cent of all pulmonary tuberculosis cases at the Municipal Tuberculosis Sanitarium presented anal fistulas. Relatively few cases of anal fistula are tuberculous.

3. The diagnosis of tuberculosis in fistula of the anus and rectum in patients with pulmonary tuberculosis depends entirely on the histopathologic examination because the gross, the clinical and the bacteriologic results are indefinite or of no value.

4. In 87 per cent of the patients with pulmonary tuberculosis on whom anal fistulectomy was performed, healing was complete; the remaining 13 per cent were far advanced cases; despite this fact, healing was progressing in 10.4 per cent of these up to the time of death. This does not confirm the claim that these wounds do not heal satisfactorily.

5. In the tuberculous patient, a perianal abscess should be incised as soon as it is diagnosed. Drainage of the infected area must be maintained. If a sinus or fistula persists, it should be operated on as soon as the general condition permits.

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OCCURRENCE OF THE BORDET-GENGOU BACILLUS

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In continuation of previous investigations [1] issued from the Danish State Serum Institute, I have carried out some systematic studies on the occurrence of the Bordet-Gengou bacillus.

Since 1916, this institute has employed the coughing-plate method introduced by Adolph H. Meyer for the bacteriologic diagnosis of whooping cough, and in Denmark this method is being used more and more.

Previously the results from a total of 2,811 suitable specimens have been compiled. In addition, I have examined 1,086 suitable specimens at the State Serum Institute during the period from Sept. 1, 1930, to March 1, 1931. All told, the material consists of 3,897 specimens, 2,144 of which came from pertussis patients. The results from these 2,144 examinations are given in table 1.

From the material of the serum institute it is difficult to say anything definite as to the occurrence of the Bordet-Gengou bacillus in the later stages of whooping cough because it is relatively seldom that specimens come from patients in these stages and also because it cannot with certainty be taken for granted that the data on the information of the stage of the disease in these cases are altogether correct. For these reasons, I have made a systematic examination on 109 children

From the State Serum Institute, Thorvald Madsen, M.D., Director.

1. These include:
Chievitz, J., and Meyer, A. H.: Arch. f. Kinderh. **64**: 321, 1915; **66**: 186, 1915; Ann. de l'Inst. Pasteur **29**: 503, 1916; Communicat. de l'Inst. sérothérap. de l'état Danois **9**: 151, 1917; München. med. Wchnschr. **65**: 729, 1918.
Kristensen, Martin: Communicat. de l'Inst. sérothérap. de l'état Danois **17**: 199, 1927; Compt. rend. Soc. de biol. **96**: 355 (Feb. 11) 1927; Brit. M. J. **2**: 663 (Oct. 9) 1926.
Madsen, Thorvald: Boston M. & S. J. **192**: 50 (Jan. 8) 1925; Revue franç. de pédiat. **5**: 145 (April) 1929.
Meyer, A. H.: Communicat. de l'Inst. sérothérap. de l'état Danois **11**, 1921; Compt. rend. Soc. de biol. **84**: 425, 1921.

who had whooping cough, letting them cough on a plate of Bordet-Gengou medium from two to three times a week for a considerable length of time. When the coughing ceased, I employed the following method for making cultures: With a sterile probe, bent to an angle of 130 degrees, I tried to obtain some secretion from as far down in the larynx as possible, taking precautions at the same time not to touch the mucous membranes of the mouth and fauces. In every case, cultures were made from the posterior wall of the pharynx before inoculation from the larynx was undertaken. It was only in a few cases that cultures from the pharynx turned out to be positive. The material obtained with each probe was used for smear cultures in at least two dishes of the pertussis medium employed by the institute.

TABLE 1.—*Results from Examination of 2,144 Pertussis Patients*

	Number of Pertussis Patients	Number of Patients with Bordet-Gengou Bacillus	Frequency of Positive Bacillary Results
Catarrhal stage	378	247	65.3%
Convulsive stage, 1st week	837	486	58.1%
Convulsive stage, 2d week	441	231	52.4%
Convulsive stage, 3d week	210	84	40.0%
Convulsive stage, 4th week	104	35	33.7%
Convulsive stage after 4th week	174	13	7.5%

After practicing this technic for some time, I almost always succeeded in obtaining suitable smear cultures, which allowed an examination of the same number of isolated colonies as are usually found on a plate inoculated by coughing. Control tests showed that the presence of Bordet-Gengou bacilli can be demonstrated just about as often by cultivation from the larynx as with the cough-plate method.

The results obtained in the systematic examinations of these 109 children are given in table 2.

TABLE 2.—*Results of Systemic Examination of One Hundred and Nine Children* *

	Number of Examinations	Number of Positive Results	Frequency of Positive Results, per Cent
Convulsive stage, 1st week	68	43	63.2
Convulsive stage, 2d week	65	22	33.8
Convulsive stage, 3d week	89	16	18.0
Convulsive stage, 4th week	93	4	4.3
Convulsive stage, 5th week	95	4	4.2
Convulsive stage, 6th week	72	0	0
Convulsive stage, 7th week	57	1	1.8
Convulsive stage, 8th week	52	1	1.9
Convulsive stage, 9th week	22	0	0
Convulsive stage, 10th week	20	1	5
Convulsive stage, 11th week	13	0	0
Convulsive stage, 12th week	7	0	0
Convulsive stage, after 12th week	22	0	0

* Total number of examinations, 675 on 109 children; that is, on an average, 6 examinations on each child.

As the children were examined more than once in the same week, the frequency of positive cultures is somewhat greater in proportion to the number of children than in proportion to the number of examinations (table 3).

If the data in regard to the 3,897 plates examined at the serum institute by different observers since the procedure was initiated are collected, a curve of the duration of carriage of the organism could be drawn. However, such a curve would be unreliable because too few examinations were made after the fourth week and because the examinations were made by different observers.

I have therefore constructed a curve based on my own material, which consists of the examinations on the 109 children previously referred to and on the 1,086 samples examined by me in the diagnosis station.

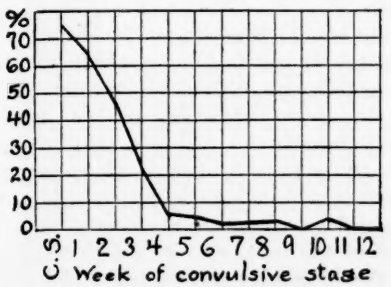
In Denmark, pertussis patients are quarantined during the first four weeks of the convulsive stage.

From my bacteriologic studies it is to be expected that infection may be transmitted from the patients late in the course of the disease. Still, it is a question whether this actually happens often enough to extend the quarantine. To elucidate this question, I have gathered the practical experiences of the past fifteen years in Denmark concerning the infectivity of whooping cough after the fourth week of the convulsive stage. It turns out to be a very rare occurrence in schools, hospitals, nurseries, asylums or any institution that a pertussis patient communicates the infection after the quarantine is discontinued.

TABLE 3.—*Percentage of Positive Results by Weeks*

In the 5th week B.-G. bacilli were found in	4 out of 57 children 7.0%
In the 6th week B.-G. bacilli were found in	0 out of 47 children 0 %
In the 7th week B.-G. bacilli were found in	1 out of 33 children 3.0%
In the 8th week B.-G. bacilli were found in	1 out of 30 children 3.3%
In the 9th week B.-G. bacilli were found in	0 out of 13 children 0 %
In the 10th week B.-G. bacilli were found in	1 out of 11 children 9.1%

The question whether there are chronic carriers of whooping cough has not been investigated before on a scale sufficient to allow of any conclusions. No comprehensive systematic investigation into this question has been published before, and those few reports of the finding of the Bordet-Gengou bacillus in persons who have no whooping cough have all been rather doubtful. Therefore, I have examined 500 healthy persons who did not cough and who had not been in contact with any pertussis patients in the infectious stage; these examinations were made with cultures from the pharynx and from the larynx. In addition, I have examined 301 persons who have lived in contact with infectious pertussis patients for at least one week; these examinations were made with the cough-plate method combined with pharynx and larynx cultures. I have further examined 30 patients with pharyngeal diphtheria, 12 patients with croup, 11 patients with pseudocroup, 22 patients with scarlet fever, 18 patients with measles, 22 patients with bronchitis, 12 patients with bronchopneumonia, 19 patients with catarrhal cough, 30 patients with influenza, 10 patients with pulmonary tuberculosis, 6 patients with pharyngitis, and 10 patients with laryngitis, a total of 202 patients suffering from various diseases of the respiratory tract with the exception of whooping cough.



Relation between stage of the disease and percentage of positive results. *C.S.*, catarrhal stage.

In this material the presence of pertussis bacilli was not demonstrated in any case except in 9 out of the 301 persons who had lived in contact with infectious pertussis patients; these 9 persons all acquired whooping cough.

The fact that whooping cough is still one of the most common diseases in children, together with the other fact that the source of infection often is quite unknown, suggests very strongly that the infection is not infrequently spread by patients in whom whooping cough is unrecognized. In fact, several investigators have demonstrated Bordet-Gengou bacilli in patients with abortive whooping cough, and others have verified such cases by means of the complement fixation test. Clinical experiences show that adults and older children often have whooping cough in an atypical form, and that the same applies to pertussis patients after prophylactic vaccination or after vaccination in the first stage of the disease.

It is difficult, however, to judge with any fair degree of certainty as to the frequency of these abortive cases of whooping cough.

I shall briefly report the series of examinations comprising eighty families in which whooping cough made its appearance. The presence of this disease was ascertained by demonstration of Bordet-Gengou bacilli in the cough-plates forwarded to the institute from members of the respective families. All the members of these families were examined once or more by means of cough-plates or by smear cultures from the pharynx and larynx. In addition, the clinical course of the various cases of whooping cough in these families was followed very closely, and attempts were made to trace the source of infection. This series of studies covers 385 persons, 202 aged under 15 years and 183 aged over 15 years. Of these, 301 have been mentioned before, in the investigations on chronic carriers of pertussis bacilli.

Seventy-six of the persons under 15 years had clinically typical whooping cough; in these cases the presence of Bordet-Gengou bacilli was demonstrated by the serum institute in the beginning of the disease. Forty children had abortive whooping cough without typical paroxysms or vomiting, but with noncharacteristic coughing that lasted about one month. The remaining eighty-six children were not attacked.

In sixteen of the forty children with abortive whooping cough, the diagnosis was established by demonstration of the Bordet-Gengou bacillus; in twenty-four, the diagnosis was strongly supported by the protracted coughing that appeared after the patient had been exposed to pertussis infection and further by the fact that these patients in all probability had transmitted the infection to other persons who then had clinically typical whooping cough.

Among the 183 persons over 15 years, 1 had clinically typical whooping cough, 4 had abortive whooping cough, and 178 were not attacked.

In all, among 202 children (up to 15 years) whooping cough occurred in 116, and in 40 of these (i. e., about 35 per cent) it took an abortive course. In 183 adults there were 5 cases of whooping cough, 4 of these being abortive.

Thus, it is reasonable to assume that abortive cases of whooping cough, often not recognized, are very frequent. As a rule, they occur in older children or adults, in persons who have had whooping cough before, or in patients who have been vaccinated against this disease.

SUMMARY

1. The results of my examinations are comparable with the hypothesis that the Bordet-Gengou bacillus is the etiologic agent of whooping cough.

2. The cough-plate method has been used for sixteen years at the State Serum Institute in Copenhagen and has proved to be of practical value. It is the best method for diagnosing the disease early.

3. An isolation period of four weeks after the onset of the typical paroxysm has in practice been sufficient for school children.

4. Healthy carries have not been found outside of families in which whooping cough exists.

5. Abortive and quite atypical cases of whooping cough are frequently found, and I believe they play an important rôle in the spread of the disease.

Clinical Notes, Suggestions and New Instruments

A CLINICAL METHOD OF VENOUS PRESSURE DETERMINATION

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In congestive heart failure, the venous pressure reading is of inestimable value. This determination offers a useful means of rating cardiovascular insufficiency. Under normal conditions the heart transports as much blood as comes to it, and there is merely a temporary rise of venous pressure. In cardiac decompensation, however, the load of the heart exceeds its physiologic response. It cannot convey into the arterial circulation the blood that comes to it from the venous circulation. Venous engorgement and stasis result, with a consequent failure of the ventricles. The increased burden on the heart produces cardiac dilatation with consequent heart failure. It has been shown experimentally that the decompensated heart needs more oxygen than the normal heart, whereas under the foregoing conditions its supply of oxygen is actually lessened. The coronary circulation is decreased, which further lowers cardiac efficiency. Venesection, in such instances, may prove a life-saving measure. Eyster[1] states: "The value of venesection in reducing the proportionately high venous blood volume, and the abnormal initial load on the right ventricle, is clearly demonstrated. Improved oxygen utilization by the cardiac muscle, increased coronary flow resulting from slower, stronger contractions [digitalis], and the lowered venous pressure offering less hindrance to the return flow from the coronary sinus are important factors in reducing the anoxemia of the heart muscle as compensation begins to be restored. Ventricular competence is regained when, by improvement in the heart muscle and by reduction of the venous engorgement by rest, venesection or other measures, the muscle begins to respond to the increased load by increased work. As the muscle becomes more efficient in its response, the venous load diminishes and cardiac output and venous pressure return to their normal ranges."

A practical means of estimating venous pressure is here described. This method originated with Gaertner[2] in 1903, and the author has applied it as a measure of determining the optimum time at which venesection will prove beneficial. Since phlebotomy relieves venous congestion and thereby lessens the load on the heart, and since venous pressure is a measure of venous stasis, the utilization of this method provides a means by which the clinician may be more closely guided in the management of cardiac failure.

1. Eyster, J. A. E.: Clinical Aspects of Venous Pressure, New York, Macmillan Company, 1929.
2. Gaertner, Gustav: Die Messung des Drucks im rechten Vorhof, München. med. Wchnschr. 1: 2038 (Nov. 24) 1903.

METHOD

A prominent vein is selected on the dorsum of the hand. The hand is first lowered until the vein is full. It is then raised slowly with the arm fully extended until the level of the right auricle is reached whence, in the normal person, the vein is seen to go from a state of filling to one of collapse. In cardiac congestion, however, the outstretched hand must be raised considerably above this zero pressure level to a height consistent with the amount of venous pressure present. If the pressure is high, it is then necessary to raise the hand to an appreciable height above the level of the right auricle. This distance can be measured as a rough approximation of the venous pressure. When this pressure head becomes less after one or more venesections, again it furnishes a roughly measurable factor. The collapse of the vein occurs when the venous pressure falls to a level not exceeding the hydrostatic pressure. "The vein represents a manometric tube connected with the right auricle. If this is compared with the estimated level of the right auricle, one can express the venous pressure in millimeters of water."

The importance of this procedure is readily demonstrated after a venesection, at which time it is found that the venous pressure is lowered. If the heart tonus is such that recovery can take place, then the pressure remains lowered because of the lessened load and improved circulation. If it is too badly damaged and cannot respond, the venous pressure will be seen not to decrease materially. There is, thus, a prognostic value attached to this procedure as well as a method enabling one to decide when venesection is or is not indicated.

SUMMARY

The description of a method is here given for the bedside determination of venous pressure without the use of apparatus. Its clinical significance lies in the fact that it is of invaluable aid in ascertaining the advisability of either single or repeated venesections. It also is of prognostic value, since in cardiac decompensation, if the venous pressure remains lowered after venesection, the conclusion may be reached that the circulatory system has sufficient reserve left to respond to a decreased venous load.

This is not to be construed as a new observation but merely as the application of Gaertner's method to venous pressure, particularly when venesection is to be employed.

327 South Seventeenth Street.

FAULTY BLOOD GROUPING DUE TO AUTO-AGGLUTININS: AN UNUSUAL CASE

PERRY J. MANHEIMS, M.D., AND ENDRE K. BRUNNER, M.D., NEW YORK

For many years, serologists have been interested in the comparatively rare phenomenon of auto-agglutination. This has been quite clearly defined by Boxwell and Bigger [1] in the following simple sentence: "Autohemagglutination is a clumping of erythrocytes into irregular masses, visible to the naked eye, occurring in the presence of the individual's own serum, without bacterial action, at air temperature and reversible at body temperature."

Landsteiner,[2] Clough and Richter,[3] Li Chen-Pien [4] and other investigators have shown that the auto-agglutinins are present in the blood serum and are dependent on a lower than body temperature. They are absorbed from the serum at low temperature and fixed to the red blood cells. The auto-agglutinins can then be freed from the red cells by washing and suspending in warm saline solution, in which solution they can be demonstrated.

The case reported here is the first instance in our experience in which the phenomenon of auto-agglutination caused a faulty blood group diagnosis to be made.

A. Z., a female, was admitted to the medical service of the Lenox Hill Hospital with a hemoglobin reading of 15 per cent, as done by the Sahli method, and a red cell count of 780,000, with the accompanying blood picture of a myelogenous leukemia. An immediate blood transfusion was ordered, and blood was taken for grouping into two small test tubes, one of which contained 2 per cent sodium citrate solution for the red cell suspension, and the other tube received blood which was centrifugated for the serum to be used in cross matching. The routine slide method of grouping was used and there was marked agglutination of the patient's red blood cells, as we thought, by both 2 and 3 grouping serum. A diagnosis of AB (group 4 Jansky) was made and a professional blood donor of that group ordered. On cross matching the blood of the patient and the donor, it was found that the donor's red blood cells were agglutinated by the patient's serum and vice versa. It has occasionally happened that a donor's red cells have been agglutinated by the serum of a patient of the same group, and this has usually been demonstrated as having been due to cold or to auto-agglutinins in the patient's serum by merely mixing the patient's serum and his own red cells at room temperature.

This was done, and there was a very rapid agglutination of the patient's red blood cells by her own serum. It is known that this does not occur at body temperature, and in previous instances of this kind we have gone ahead with the transfusion with no untoward results. But the red blood cells of this patient were also incompatible with the donor's serum, which should not happen with an AB donor whose serum contains no iso-agglutinins. Furthermore, in taking blood from a patient with a very severe anemia the proportion of red blood cells to the serum is very small. Therefore, we suspected that perhaps the auto-agglutinins in the patient's serum contained in the citrated blood might have influenced the original blood grouping.

The red cell suspension was then centrifugated, the supernatant citrate serum was pipeted off, and the red cells were washed with physiologic solution of sodium chloride and then used for a regrouping. This time there was no agglutination with types 2 or 3 grouping serum, and the patient was reclassified as an O (Jansky 1). It was then concluded that the agglutination of the patient's red cells in the original grouping was caused by her own auto-agglutinins; that the citrated red cell suspension used in this grouping contained an unusually large amount of the patient's serum, owing to her extreme anemia, or that the agglutination might have been due to the auto-agglutinins that the red blood cells of the patient had absorbed from her serum at the lower than body temperature.

After we were quite convinced that the patient was an O, a donor of that group was called and on cross matching his serum with the washed red cells of the patient's, no agglutination was seen. His red cells were agglutinated by the patient's serum at room temperature, owing to her auto-agglutinins, but since this would not occur at body temperature and also since the cells of an O are not agglutinated by the serum of any group, the transfusion was given. No reaction occurred.

For the purpose of checking our results, the patient's blood was also grouped against that of two other individuals; a known O and a known AB. With the O donor's serum, the patient's washed red cells were perfectly compatible, while the tests between the donor's serum and the patient's original unwashed citrated red cells, and the patient's serum and the donor's red cells both showed marked agglutination. The cross matching with the blood of the second AB individual and patient again showed the patient's unwashed red cells and the donor's red cells to be agglutinated by each other's serum, while there was no agglutination of the washed red cells of the patient by the second donor's serum.

Aside from the purely serologic interest that this case presents, it brings out two practical points as regards blood transfusion: Merely grouping a patient and procuring a donor of that group is not giving the patient sufficient protection against being transfused with incompatible blood. Every donor and patient should be cross-matched. Furthermore, in any instance in which auto-agglutinins are demonstrable in the blood of the patient, a regrouping should be done, washed red blood cells being used.

111 East Seventy-Sixth Street.

From the Achelis Laboratory of the Lenox Hill Hospital.

1. Boxwell, W., and Bigger, J. W.: Autohemagglutination, J. Path. & Bact. **34**: 407-417 (July) 1931.
2. Landsteiner, K.: Ueber Beziehungen zwischen dem Blutserum und den Körperzellen, München. med. Wchnschr. **50**: 1812 (Oct. 20) 1903.
3. Clough, M. C., and Richter, I. M.: A Study of an Auto-Agglutinin Occurring in a Human Serum, Bull. Johns Hopkins Hosp. **29**: 86 (April) 1918.
4. Pien, L. C.: Investigation on "Cold" or Autohemagglutination, J. Immunol. **11**: 297 (April) 1926.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

PAUL NICHOLAS LEECH, Secretary.

INTRAVENOUS USE OF BARBITAL COMPOUNDS (II)

In 1931 the Council adopted and published a report giving the status and limitations of the use of barbital compounds intravenously for anesthesia (THE JOURNAL, Dec. 19, 1931, p. 1886). The Council at that time decided on definite limitations for the intravenous use of these compounds for induction of anesthesia and sponsored the following statement: "Their intravenous use should be limited for the present to conditions in which oral administration is not feasible either because the patient is unconscious, as in cerebral hemorrhage, eclampsia, or status epilepticus, or because he resists, as in delirium, or because a very prompt action is imperative, as in convulsion from local anesthesia."

In the consideration of sodium amytal and the brands of pentobarbital sodium, the Council recognized that these drugs might be administered intravenously in the conditions mentioned in its report and laid down the following stipulation with regard to propaganda for their intravenous use: "The acceptance is subject to the continuance of the agreement under which the products are to be sold and distributed, namely, that they will not be sold for intravenous use in the open market but may be sold to hospitals and institutions for investigation purposes; and that the intravenous products will not be advertised nor propaganda made for the intravenous use of soluble barbital compounds for the induction of anesthesia. On the other hand, the Council recognizes that barbital derivatives can be administered intravenously in conditions in which oral administration is not feasible either because the patient is unconscious, as in cerebral hemorrhage, eclampsia or status epilepticus, or because he resists, as in delirium, or because a very prompt action is imperative, as in convulsions from local anesthetics; and has decided that such use may be mentioned in the advertising for these products.

In the recent consideration of Pernoston, a barbituric acid derivative marketed only in injectable form, the question was raised as to whether or not in the light of accumulated experience it was desirable to relax the limitations which the Council had placed on the intravenous use of barbital compounds. It was determined to send a questionnaire to a selected list of surgeons, anesthetists and others asking whether they considered that the time had arrived when the Council should agree to the advertising of preparations of soluble barbiturates for intravenous injection for induction of anesthesia.

The following replies to the questionnaire were received and are published (in alphabetical order) with the consent of the respective consultants:

Letter from Dr. Willard Bartlett, St. Louis:

"In our opinion the situation in regard to the intravenous use of the barbituric acid compounds has not changed since the publication of the report of the Council in 1931. Both clinical and experimental work, the literature of which we have followed with the closest interest, confirms the important facts in the matter as follows:

"1. The desirable effects of the drugs are obtained by oral or rectal administration.

"2. Oral and rectal administration of divided doses make it possible to test every individual for idiosyncrasy.

"3. There is a risk inseparable from the intravenous administration which, although that risk be remote, does not, in view of the foregoing facts, justify intravenous administration except in such an emergency as the convulsions of tetanus.

"4. It is our own feeling that the position of a doctor who, in the absence of a gross emergency, gave one of the barbituric acid compounds intravenously and had a fatal accident occur would be difficult to defend in court in view of these facts and the general opinion of nonmedical authorities qualified to hold an opinion on the subject.

"5. The clinicians who formerly wrote glowingly of the advantages of intravenous administration have not only modified their tone on the whole but have turned to oral and rectal administration as routine.

"In conclusion we believe it would be a mistake to allow the broadcasting of advertisements which would in any way encourage men not thoroughly familiar with these drugs to use them intravenously."

Letter from Dr. W. J. Bleckwenn, Madison, Wis. (in part):

"Concerning the question which was raised in your letter of the intravenous use of barbiturates in the field of anesthesia, I would say that I have no opinion other than that expressed in an article read before the Wisconsin State Medical Society at Milwaukee. I am in accord that the barbiturates are not analgesic and therefore I do not believe that, with the dosage necessary to produce the degree of unconsciousness for surgical work muscular relaxation and analgesia will occur.

"I am not interested in surgical anesthesia and am therefore unable to express an opinion of any value concerning the use of this series of drugs in surgical anesthesia but I am firmly of the opinion that they are invaluable in controlling convulsions from strychnine, tetanus, status epilepticus, eclampsia, to counteract overdoses of cocaine, the wild deliriums due to either infectious disease or intoxication, in the prevention of the acute exhausted states associated with the deliria seen by the general practitioner before such patients are sent to the proper institution and, of course from my own viewpoint the most important of all, the application of barbiturate therapy in the field of psychiatry. I wish to emphasize one fact, in the light of our experience of four years, that no oral administration of these drugs can compare with the intravenous medication in the above mentioned conditions and again, for the sake of emphasis, the importance of the proper technic of administration in avoiding the untoward reactions reported at your Council meeting and experienced by all of us before this proper technic was followed."

Letter from Dr. Hugh Cabot, Rochester, Minn. (in part):

"Please pardon my delay in answering your letter of March second asking my opinion as to the position taken by the Council on Pharmacy and Chemistry in regard to whether or not 'the time has arrived when the Council should permit the advertising of preparations of soluble barbiturates for intravenous injection for induction of anesthesia.' I have delayed answering it in order to be quite sure that I might express the opinion which I really held.

"I think the time which has elapsed since the previous report of the Council in December, 1931, has added importantly to our knowledge of the fields in which these preparations are useful. At that time there was considerable use of these preparations for or in connection with general anesthesia for surgical operations. Its use in this field has, I think, very much diminished, and I doubt whether as time goes on it will survive for this purpose. On the other hand, during the same period the value of the drug used intravenously for other purposes, chiefly in tetanus, eclampsia and strychnine poisoning, has been pretty satisfactorily demonstrated.

"It seems to me that it is now very desirable that preparations of the barbiturates for intravenous use should be on the market and readily obtainable. When they are needed, they are needed promptly, and I think physicians and hospitals can hardly be expected to keep them on hand unless they are obtainable through normal channels. I believe, therefore, that the previous ruling of the Council might properly be modified in this respect since I am firmly of the opinion that for the purposes above mentioned no method of administration other than intravenous can be relied upon to produce the desired effects."

Letter from Dr. Edward D. Churchill, Massachusetts General Hospital (in part):

"In direct answer to your question it is my opinion that the Council should not permit the advertising of preparations of soluble barbiturates for intravenous anesthesia. In very special cases this method may be employed but only by individuals well conversant with the pharmacological action and dangers of these preparations. I feel that the margin between safety and danger with anesthetic doses of barbituric acid compounds is too small and the liability for variations in individual susceptibility too great to recommend this form of anesthesia to the profession at large."

Letter from Dr. George W. Crile, Cleveland:

"In response to your letter of February 20, I should say that there is a sound principle which contraindicates the use of intravenous anesthesia in any form whatsoever. The reason for this is obvious. The anesthetic is irrecoverable and should there be an overdose it would be fatal. Moreover, these anesthetics anesthetize all protoplasm, not the brain only, and hence they should be used only in cases in which there is a good factor of safety, that is to say, intravenous anesthesia should never be used in cases in which the patients are depressed by shock, hemorrhage, disease, infections, etc."

Letter from Dr. Elliott C. Cutler, Peter Bent Brigham Hospital, Boston:

"I am wholeheartedly opposed to such action on the grounds (1) that any anesthetic which has to be given intravenously and for which there is not a specific chemical antidote which can stop the anesthetic at once is always a danger to the patient; and (2) that there are other anesthetics much more suitable and equally efficacious in all conditions.

"I should hate to see the Council popularize this drug, though I cannot say from personal experience that it has grave dangers."

Letter from Dr. Charles Gordon Heyd, New York:

"I do not believe the time has arrived when the Council should permit the advertising of preparations of soluble barbiturates for intravenous injection for induction of anesthesia.

"Intravenous anesthesia by the barbiturates makes the induction of anesthesia a matter of trifling technical procedure. It allows the induction of this type of anesthesia in a physician's office and in many cases the anesthesia will lend itself to an extension of office surgery or criminal abortions. It is not without danger and its administration, if possible, for anesthesia purposes should be confined to hospital practice.

"I am enclosing herewith a reprint of an article bearing on the subject (*Am. J. Surg.*, July, 1930, pp. 29-35)."

"I see no reason why it cannot be employed in hospital practice where the safeguards are usually adequate to protect the public against the possible implications mentioned above."

Letter from Dr. Carl H. Lenhart, Lakeside Hospital, Cleveland:

"I have had some bad experiences with intravenous use of barbital preparations, and I am no longer interested in them. Naturally I am prejudiced against forcing its use upon the medical profession by advertising methods."

Letter from Dr. John S. Lundy, Mayo Clinic, Rochester, Minn. (in part):

"I think that the soluble barbiturates for intravenous injection should be made available to every physician for emergency purposes and that the commercial houses should be encouraged to make them available. However, so far as advertising is concerned, the matter should so read that it will be understood that the drug is a definite antispasmodic and is an anesthetic and that it may be used essentially for either or both purposes in an emergency but that it is not intended for routine use."

Letter from Dr. E. I. McKesson, Toledo, Ohio (in part):

"While it is admitted that the injudicious and indiscriminate use of these drugs is capable of harm, we feel that the decision as to when they should be employed might better be made by the physician using them. It does not seem fair that the profession as a whole should be denied free use of drugs simply because bad results may follow their ignorant or careless administration.

"It is our opinion that the general advertisement and sale of soluble barbiturates for intravenous use should be permitted."

Letter from Dr. I. S. Ravdin, University of Pennsylvania School of Medicine:

"I believe I am correct when I state we were the first to use sodium amytal for basal anesthesia in man. From the time we first began until the present time we have felt that the intravenous use of the barbiturates was dangerous. As our experience with the barbiturates has increased we have felt that their administration by mouth or by rectum, preliminary to narcosis with other agents, is often advantageous. We have, however, become more and more convinced that they should never be used beyond the point of basal anesthesia, and even then, we believe, one is not justified in using the barbiturates for basal anesthesia routinely.

"There seems to be no reason why the barbiturates should be given intravenously except on the rarest of occasions, since the oral and rectal administration will give satisfactory results in the majority of instances. In the delirious or psychopathic patient the intravenous use of the barbiturates is no doubt indicated; but looking back over an experience of six years I believe the indications for the intravenous use are limited to this group.

"The portion of the Council's statement beginning with 'Their intravenous use should be limited' seems to me to cover the indications for the intravenous use of the barbiturates. I do not believe it is safe to go beyond this statement."

Letter from Dr. L. F. Sise, Lahey Clinic, Boston:

"I believe that manufacturers should be allowed to advertise such use, but for basal anesthesia or narcosis only, and not for complete anesthesia. The reasons for this opinion are as follows:

"1. There is a field of usefulness for the intravenous administration of these drugs in conjunction with other agents. Our experience in the past in this field has been very satisfactory. The field is quite narrow and at the present time we are not thus using barbiturates, partly because of the narrowness of the field; partly because tribrom-ethanol has with us replaced this use, and partly because the oral administration of barbiturates is more convenient and practical in a busy clinic.

"2. The use of barbiturates for complete anesthesia is not advisable.

"3. Because there are undesirable effects and dangers connected with the intravenous use of the soluble barbiturates is no reason why they should not be thus used. A large proportion of the most useful procedures in medicine and surgery have undesirable effects and dangers connected with them if they are not properly used.

"4. It is highly desirable that these products be on the market and conveniently on hand for intravenous use in certain emergency conditions. I feel that the wider field of advertising of these products would be an aid in keeping them readily available."

Letter from Dr. Arthur L. Tatum, University of Wisconsin:

"Intravenous injections of short acting barbiturates are occasionally justified:

"(*a*) For preanesthetic depression (*not complete surgical anesthesia*) in special cases where immediate sedation or hypnosis is required or desirable. In trained hands, intravenous injections can be better quantitated than when the barbiturate is given per os, where variations of absorption occur. However, the intravenous method of administration should not become routine because of possible abuse. By comparison, however, hypodermics of morphine and scopolamine are common and accepted as justified.

"(*b*) For antidoting of convulsive poisoning, quick action is required; hence, intravenous administration is fully justified. Certain cases of dementias are included in this group.

"For ordinary hypnotic uses, the barbituric acid is essentially identical to the sodium salt, since the stomach is normally acid which precipitates the barbituric acid in the stomach.

"We are adamant in insisting on individualization of preanesthetics as well as anesthetics according to the requirements of each individual case. Routinization in use as preanesthetic depressants is strongly condemned.

"If barbiturates are chosen for preanesthetic depression, the operator should base his choice on whether or not a short, medium or long period of hypnotic depression is desired.

"Finally, people will give intravenous injections of barbiturates as preanesthetic depressants regardless of advertising, so if caution is insisted on, i. e., limiting recommendation only in selected and special instances, perhaps this positive limited recommendation would do more good than not to have so stated it."

Letter from Dr. Soma Weiss, Boston City Hospital (in part):

"As far as the practice of surgeons is concerned in this hospital, and other hospitals with which I am familiar, it is my impression that this problem is still entirely in a rather chaotic and experimental stage. Following the early and rather enthusiastic reports concerning amytal particularly, various barbituric acid derivatives have been used by surgeons in relatively high doses. Although large doses are still used by various surgeons, especially those in smaller communities, it is my impression that gradually through sad experiences surgeons are refraining from using barbituric acid derivatives in relatively large doses.

"I believe that the report of the Council, published in 1931, on the Intravenous Use of Barbital Compounds is still up to date. I may say that in this article the rôle of the relation between the state of the central nervous system and the dosage of the barbituric acid derivatives is somewhat underestimated. The greatest danger in the intravenous use of barbituric acid derivatives in surgery is due to the fact that, as a result of varying degrees of surgical trauma, loss of blood and other complications, the dose of barbituric acid derivatives which in one patient would not be toxic may become toxic in another individual. I am certain from observing patients, as well as from animal experiments, that in the presence of depressed central nervous system, particularly in shock, smaller doses will prove to be fatal. It is also very probable, although I have not had experience in this, that the detoxication and elimination of the barbituric acid derivatives in the presence of shock will be considerably lowered. As one can never tell in surgery when such emergency will arise, the recommendation of the routine use of intravenous administration of any substance in amounts that produce hypnosis and of any substance which has a relatively long persistent action cannot be advocated.

"There may be, on the other hand, certain special indications when a relatively large dose of barbituric acid derivatives can be given intravenously. Such indications may be, if for certain reasons volatile anesthetics are contraindicated. The upshot of all these considerations is that barbituric acid derivatives in the induction of anesthesia should be used only as adjuvants, similar to the use of morphine, scopolamine, etc. As such, it should be pointed out that they are absorbed well by mouth, and the effect of oral and intravenous administration is quite similar. If, therefore, for some reason, oral administration of such relatively small doses is not feasible, intravenous injection is permissible.

"As to the size of the dosage in such preoperative use of the barbituric acid derivatives, they should be relatively low and should be somewhere between 10 and 20 per cent of the fatal dose. There is some indication, and opinions to this effect are frequently expressed, that these relatively small doses reduce the amount of volatile anesthetics needed.

"In looking over my publication on this problem in the *American Journal of the Medical Sciences*, 1929, volume 178, page 390, I believe that on the whole I still maintain the same opinion as to the indications and danger of the barbituric acid derivatives as expressed there.

"If there is any additional information that you would like on this matter, please do not hesitate to call on me."

The Council has given careful consideration to the replies to the questionnaire, and it believes that the evidence overwhelmingly sustains its previous conclusion concerning the limitations for the use of the soluble barbiturates in the induction of anesthesia. The Council therefore has reaffirmed its previous decision with reference to the advertising of these substances.

℞ DOCTOR'S PRESCRIPTION POWDER NOT ACCEPTABLE FOR N. N. R.

"℞ Doctor's Prescription Powder" is marketed by the Dermic Laboratories, New York. In the information submitted by the firm for the Council's consideration the product was stated to have the following composition:

1¼	lbs. Salicylic Acid U. S. P.
3½	lbs. Boric Acid U. S. P.
1¼	lbs. Zinc Stearate U. S. P.
2½	lbs. Ammonium Alum U. S. P.
2	lbs. Zinc Oxide U. S. P.
175	lbs. Talcum Powder.

No statement of composition appears on the trade package, on which the preparation is stated to be "Scientifically prepared for the relief of athlete's foot . . . Bromidrosis (Excessive Perspiration) . . . Eczemas." The product is also stated on the label to be "the formula of an experienced and well known Physician." Under "Directions" it is stated, among other things, that the product is "Ideal for all affections caused by heat," "Sanitary Napkins. To deodorize use freely."

The statement of composition shows that the preparation is unnecessarily complex and the name gives no information

as to the ingredients. There is no evidence that such a complex mixture is more effective than a simpler mixture for the relief of some of the conditions mentioned on the trade package. In particular, there is no evidence that this or any other deodorant will deodorize sanitary napkins as claimed on the trade package. The Federal Trade Commission recently issued the following ruling on consent of the Sanitary Napkin Industry:

"The use of the term 'deodorized,' or similar terms or expressions, in the advertising or sale or offering for sale of sanitary napkins in a manner calculated to mislead or deceive the trade and purchasing public into believing that the said sanitary napkins contain a deodorant or possess deodorant properties, when such is not the case, is an unfair trade practice."

The Council declared "℞ Doctor's Prescription Powder" unacceptable for New and Nonofficial Remedies because it is an unnecessarily complex mixture marketed under a noninforming name with no statement of composition and with unwarranted and exaggerated therapeutic claims.

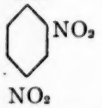
PRELIMINARY REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING PRELIMINARY REPORT. PAUL NICHOLAS LEECH, Secretary.

ALPHA-DINITROPHENOL

Elsewhere in this issue appears an article by Cutting, Mehrtens and Tainter on dinitrophenol. As this compound is relatively new both to pharmacology and to clinical medicine and is not described in standard works on materia medica, the editor of THE JOURNAL requested that it be considered by the Council. Accordingly, the Council has adopted the following for publication as a preliminary report:

Alpha-dinitrophenol (1:2:4) OH



is a compound known in industry chiefly as an intermediate in the manufacture of explosives. It came into prominence in France during the World War, when it was extensively employed in the production of munitions. Numerous cases of poisoning occurred in factory workers handling the material; not a few of those exposed developed headache, dizziness, vomiting, high fever and other alarming symptoms, followed in some instances by sudden death. These accidents grew so numerous that it was proposed at one time to abandon the manufacture of this compound despite the then great demand for it. Fortunately, hygienic measures instituted after the source of the intoxications had been traced completely prevented further casualties.

In the extensive pharmacologic scrutiny to which dinitrophenol 1:2:4 was subsequently subjected, several highly interesting properties came to light. In particular this compound was found to produce marked hyperthermia in animals; this led to death if the dosage was large enough.

Cutting, Mehrtens and Tainter and their co-workers have found, as reported in their paper, that the administration of dinitrophenol in proper dosage may result in acceleration of cellular metabolism, both in animals and in man, without apparent evidence of deleterious effect. They therefore propose the clinical use of this compound in individuals in whom acceleration of the metabolic rate may be of value. Dinitrophenol appears, in some conditions, to have advantages over thyroxine for this purpose.

The authors realize, of course, that their very extensive investigations have not yet ruled out beyond a reasonable margin of doubt the possibility of remote toxic effects in the clinical use of dinitrophenol, somewhat as liver atrophy has occurred after cinchophen. Their conclusion, in which the Council concurs, is therefore reproduced herewith: *"There are limitations to and possible dangers from the use of the drug clinically. It should be used only under strictly controlled conditions."*

Alpha-dinitrophenol is at present available on the market for chemical use only and is not sold as a drug. The Council has therefore deferred further consideration of this preparation until more evidence is adduced for its therapeutic usefulness.

Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. RAYMOND HERTWIG, Secretary.

NOT ACCEPTABLE

VI-TONE (MALT CHOCOLATE FLAVOR)

The Vi-Tone Company, Hamilton, Canada, submitted to the Committee on Foods a chocolate flavored powder "Vi-Tone (Malt Chocolate Flavor)" containing malt extract, sucrose, glucose, coconut oil, skim milk, soya bean, calcium phosphate and salt. It is intended for the preparation of a beverage with milk or water.

Discussion of Label.—The label prominently defines the product as "A tonic food beverage—an extraction of malt and milk—rich in proteins and vitamins of the soya bean" and states that "Vi-Tone should never be boiled as the diastase, vitamins and other digestive principles are destroyed in this manner." This food is no more a tonic than are other foods. The designation "tonic food" is deceptive because it implies special medicinal or therapeutic values.

The description "an extraction of malt and milk—rich in proteins . . . of the soya bean" is an incomplete statement of ingredients. Descriptive statements accompanying fanciful trade names such as "Vi-Tone" should be complete and include all ingredients arranged in the order of their descending proportions by weight in the product.

The claim "rich in vitamins of the soya bean" connotes that soya bean and the product are rich in all the vitamins; soya bean is a poor source of vitamins A and C. Vitamin claims should specify the vitamins referred to.

"Rich in proteins of the soya bean" implies that soya bean is a major ingredient of the product, whereas it is present in a rather small proportion.

The statement regarding the destruction by boiling of "diastase, vitamins and other digestive principles" leads the reader to believe that the product is valuable for its "digestive principles." The product may be diastatically active because of the malt extract ingredient, but any starch digestive effect it may have on the starch of other ingested foods is unimportant. The starch digestive powers of a small amount of saliva swallowed with foods is more effective.

Discussion of Advertising.—An advertising leaflet entitled "VI-TONE TO THE HEALTH OF THE NATION" contains numerous exaggerated and unwarranted statements:

"VI-TONE MAINTAINS YOUTH, VIGOR AND ENERGY." "VI-TONE VITAMINES—THE FIRST ESSENTIALS OF LIFE AND HEALTH." "The three greatest sources of digestible vitamines are the soya bean, malt and milk, and these are combined to make Vi-Tone . . . —it supplies that vital energy that is indicated by the name Vi-Tone. The malt in Vi-Tone also contains diastase, a vegetable digestant, which converts the free starch in other foods, such as potatoes and white bread, into a form which makes it easily assimilated by the system. Starch cannot digest in the gastric juices, which are acid, without diastase. Vi-Tone is not only itself easily digested, but it thus increases the value of all other foods. Men and women with saw-toothed nerves need Vi-Tone. The fagged feeling that follows a tense day at the office or in social duties does not come from tired muscles; but from nerves that have been drained of their vitality. The nerves are fed and revived by Vi-Tone. The student whose brain refuses to function further, because it has reached the limit of endurance, does not crave heavy food because he does not require it. Vi-Tone fills his need. The aged and infirm find renewed life and vigor in Vi-Tone. It stimulates the appetite, aids digestion and improves the general health. Children are full of the spirit of life and fun when their bodies are abundantly supplied with vitamines. Their subconscious minds know what they need and lead them instinctively to Vi-Tone. . . . Vi-Tone may be used as a reducer when taken hot or cold for breakfast or lunch instead of heavy foods. It contains the required nourishment. Vi-Tone, for those who suffer from malnutrition, or are anaemic, thin and weak, will build up the system with rich red blood and firm flesh. . . . It improves digestion and enables the system to assimilate the full nourishment from other foods, thus correcting malnutrition. As a natural consequence, it prevents constipation. . . . Physicians know the value of Vi-Tone and gladly recommend it. Ask your own doctor. The scientific combination of the soya bean, malt extract and milk all so rich in protein and vitamine content goes to make the delicious easily digestible chocolate flavored Vi-Tone, supplying that vital energy indicated by the name. Radiographers use Vi-Tone in connection with gastro-intestional examination making a most delicious drink for Barium suspension and as a diet in Mucus Colitis and kindred ailment. Physicians strongly recommend Vi-Tone."

This advertising represents a crude attempt to transform Vi-Tone into a "patent medicine food." It is even claimed that this high caloric food "may be used as a reducer"; although it provides little indigestible residue it is stated that "it prevents constipation." All the prevalent misleading claims adopted for so-called health foods, with hardly an exception, are brought into service for Vi-Tone. For giving final authoritative support to the alleged medicinal claims, it is stated that "physicians strongly recommend it."

Such advertising degrades the sale of foods to the level of deception used in promoting nostrums and is a cruel exploitation of the public.

The manufacturer was informed of the Committee's report but has not demonstrated that any steps have been taken to correct the label and advertising in accordance with the Committee's recommendations. Vi-Tone therefore will not be listed among the Committee's accepted foods.

REPORTS OF THE COMMITTEE

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

BUY JIMINY (A PEANUT BAR)

Manufacturer.—The Curtiss Candy Company, Chicago.

Description.—A bar containing peanuts, sucrose, corn syrup, coconut butter and salt.

Manufacture.—The sugar and glucose are cooked in open kettles until a temperature of 118 C. is obtained; a portion of the peanuts is added and the mass is cooked until the peanuts are roasted and a definite temperature is reached. The coconut butter, salt and the remainder of the peanuts are added; the mix is heated until a definite temperature is attained; it is uniformly spread on a steel belt and automatically cut into bars, which are refrigerated and wrapped.

Analysis (submitted by manufacturer).—

	per cent
Moisture	1.5
Ash	1.9
Fat (acid hydrolysis method)	33.0
Protein (N × 6.25)	18.4
Reducing sugars as dextrose	12.0
Sucrose (copper reduction method)	14.4
Crude fiber	1.2
Carbohydrates other than crude fiber (by difference)	44.0

Calories.—5.5 per gram; 156 per ounce.

WHITE HOUSE RICE FLOUR

Manufacturer.—Standard Rice Company, Inc., Houston, Texas.

Description.—Scoured rice flour.

Manufacture.—Scoured rice is pulverized between corrugated rolls and sifted over silk cloth; the flour passing through the silk is automatically packed in wax-paper wrapped cartons.

Analysis (submitted by manufacturer).—

	per cent
Moisture	9.3
Ash	0.8
Fat (ether extraction method)	0.7
Protein (N × 5.95)	6.7
Crude fiber	0.6
Carbohydrates other than crude fiber (by difference)	81.9

Calories.—3.6 per gram; 102 per ounce.

PURE GOLD BREAD

Manufacturer.—The Kilpatrick Baking Company, Denver.

Description.—A white bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817); prepared from patent flour, water, sweetened condensed skim milk, sugar, lard, salt, dry whole milk, yeast, diastatic malt syrup, and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

LUCKY GLUTEN FLOUR

Manufacturer.—Federal Mill, Inc., Lockport, N. Y.

Description.—Wheat glutten flour containing not more than 44 per cent of starch.

Manufacture.—The gluten flour is prepared by admixing definite proportions of ground gluten with a "standard patent" flour. The ground gluten is manufactured from wheat flour by washing starch out of a wheat dough with water in a special machine. The starch flows away with the water, whereas the gluten with a small amount of starch remains behind as a gummy mass which is dried in "vacuum" driers and milled to a flour.

Analysis (submitted by manufacturer).—

	per cent
Moisture	7.7
	moisture free basis
Ash	1.1
Fat (ether extraction method)	2.2
Protein (N × 5.7)	42.8
Nitrogen	7.5
Starch (diastase method)	40.9
Crude fiber	1.1
Carbohydrates other than crude fiber (by difference)	45.1

Calories.—3.7 per gram; 105 per ounce.

Claims of Manufacturer.—Especially manufactured for recipe preparations for special diets. Fulfils United States Department of Agriculture definition and standard for gluten flour.

NESTLÉ'S, IDEAL, LA LECHERA, MILKMAID, ALPINE BRANDS UNSWEETENED EVAPORATED MILK

Manufacturer.—Nestlé's Milk Products, Inc., New York.

Description.—Unsweetened, sterilized evaporated milk. The same as Alpine, Lion and Everyday Brands Sterilized, Unsweetened Evaporated Milk (THE JOURNAL, Jan. 23, 1932, p. 319).

SCHAIBLE'S LONG BEST-YET BREAD

Manufacturer.—Schaible's Bakery, Inc., Easton, Pa.

Description.—A white bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817); prepared from patent flour, water, sucrose, sweetened condensed skimmed milk, lard, dry skim milk, salt, malt extract, calcium acid phosphate, and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

MEADOWMERE BRAND UNSWEETENED EVAPORATED MILK

Packer.—The Page Milk Company, Merrill, Wis.

Distributor.—Wm. Steinmeyer Company, Wholesale Grocers, Importers and Coffee Roasters, Est. 1864, Milwaukee.

Description.—Unsweetened evaporated milk; the same as Page Evaporated Milk, Sterilized Unsweetened (THE JOURNAL, May 30, 1931, p. 1872).

MARTINELLI'S GOLD MEDAL PURE CHAMPAGNE TYPE SPARKLING APPLE CIDER (CARBONATED)

Manufacturer.—S. Martinelli and Company, Watsonville, Calif.

Description.—Carbonated pasteurized sweet apple juice.

Manufacture.—The cider as described for Martinelli's Gold Medal Sweet Pure Apple Cider (THE JOURNAL, June 24, 1933, p. 2010) is carbonated by being pumped through a carbonator consisting of a silver lined dome filled with glass balls, over which the cider is sprayed and percolates to the bottom of the dome under a pressure of 30 pounds of carbon dioxide. From the carbonator the juice is forced by gas pressure to a high pressure filling machine, where the bottles are filled and capped under pressure. The bottled juice is pasteurized for thirty minutes at 68 C.

Analysis, Calories, Vitamins and Claims of Manufacturer.—See Martinelli's Gold Medal Sweet Pure Apple Cider (THE JOURNAL, June 24, 1933, p. 2010).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JULY 15, 1933

COPPER IN THE DAILY DIET

Copper occurs frequently in the various foods that enter into the human diet. The investigation of its occurrence in such materials began more than a century ago.[1] The accurate estimation of traces of copper in organic matter has offered considerable difficulty until comparatively recent times. Most persons in the past have viewed the element in food materials as a chance contaminant, the presence of which might readily become of toxicologic moment. Of late the subject has presented great interest, since the study of various forms of anemia has led to general application of the observation by Bunge in 1889 that men and mice could be made anemic by a diet of cow's milk exclusively; and of the discovery by Hart, Steenbock, Waddell and Elvehjem that a prompt regeneration of hemoglobin could be obtained in milk-fed anemic rats by administration of small amounts of inorganic copper. Newell and McCollum[2] of the Johns Hopkins University do not hesitate to class copper as an essential of the diet, and this conclusion is shared by many investigators who have been engaged in researches on blood regeneration.

Several years ago, Flinn and Inouye[3] of Columbia University remarked that copper is so universally distributed throughout the plant and animal kingdoms as to raise the question whether it may not play some important part in the metabolic reactions of the organism. Certainly its presence in plants and animals alike cannot be explained simply by its adventitious occurrence in the soil. There is increasing evidence that, up to a certain point, copper may be beneficial to both animals and plants, but that, in excess of this quantity, ill effects sometimes, but not always, ensue. As Rose points out, the constant occurrence of copper in association with iron in the blood and tissues of men and animals, and the striking fact of its high concentration in the liver of the new-born would of themselves justify inquiry into its physiologic significance. There have been hasty attempts to introduce the use of copper widely into human therapy of disorders of the blood, notably all types of anemia, even before the facts are well established. Granted that there may be occasional shortage of iron in the intake of man, is this necessarily true of copper? The quantity actually needed, judged by all the recent studies of nutritional anemias in animals, probably does not exceed one-tenth that of iron.

According to Flinn and Inouye, only a small fraction of ingested copper is eliminated promptly in the urine. Therefore the study of the latter excretion in man is not without interest at this time. At the Montreal General Hospital, Rabinowitch[4] has carefully examined the urine of fifty persons selected at random except that histories were carefully taken in order to exclude cases in which there was any suggestion of undue exposure to copper through treatment or occupation. From the analytic results, copper appears to be a constant constituent of urine of normal persons. The amounts found ranged between minute traces and 0.4 mg. per liter and between traces and 0.7 mg. for twenty-four hours. In two copper "balance" experiments in which the subjects were fed copper, the amounts were appreciably larger. Obviously, people consume quite unwittingly, day by day, far larger quantities of copper than the data presented indicate. Probably there is more actual danger at present of excessive intake than of deficiency in the human dietary.[5] At any rate the hasty inclusion of copper in present-day therapeutic programs may be ill advised. Intensive study of the problem for man is imperative.

1. The subject has been reviewed by Rose, Mary S.: The Nutritional Significance of Some Mineral Elements Occurring as Traces in the Animal Body, Yale J. Biol. & Med. **4**: 499 (March) 1932.
2. Newell, J. M., and McCollum, E. V.: Studies on the Rôle of Zinc in Nutrition, J. Nutrition **6**: 289 (May) 1933.
3. Flinn, F. B. and Inouye, J. M.: Some Physiological Aspects of Copper in the Organism, J. Biol. Chem. **84**: 101 (Oct.) 1929.
4. Rabinowitch, I. M.: The Copper Content of Urine of Normal Individuals, J. Biol. Chem. **100**: 479 (April) 1933.
5. Gordon, A. H., and Rabinowitch, I. M.: Yellow Atrophy of the Liver, Arch. Int. Med. **51**: 143 (Jan.) 1933.

SOME PROBLEMS OF THERAPEUTIC RESEARCH

The rapid progress that clinical medicine has experienced in recent years has been accelerated by the labors of scores of scientific laboratories. Sir F. G. Hopkins, distinguished president of the Royal Society of London, once remarked[1] that experience at the bedside and the habit of close observation are essential for the making of a successful physician. These and these alone can qualify him for the application of knowledge to the relief of human suffering; but history shows that knowledge itself grew slowly when bedside observations were its chief source. This is, perhaps, only another way of saying that the physician on whom the task of medical leadership falls needs certain types of cooperation outside the clinic to enable him to attain his highest aims most effectively.

1. Science and the Nation, edited by A. C. Seward, Cambridge, University Press, 1917, p. 231.

It has been said that in the wild-goose chase for remedies in the past the result was generally negative and the physician had almost invariably to resign himself to do what he could through merely alleviating by the simplest means the most distressing symptoms of his patient. Even purely palliative or symptomatic treatment is not devoid of virtues in an age of ignorance of underlying causes or inability to avert them. There is, however, considerable danger that a widespread attitude of so-called therapeutic nihilism among physicians may delay the development of rational therapy. There have, indeed, been vigorus reforms in drug treatment in recent years. Lee [2] has remarked that physicians no longer adminster the old mixtures of innumerable drugs, given with the comprehensive hope that some one component would hit the mark, and hence called shotgun prescriptions. Large quantities of individual drugs also are avoided, and the endeavor is made to reach only the specific functions that are disordered.

The complaint is not infrequently heard that real experimental therapeutics has often been hampered rather than helped by the selfishness and greed of commercial interests. The experience of the Council on Pharmacy and Chemistry of the American Medical Association over a quarter of a century could be drawn on to support some of these criticisms. The great development of university laboratories and endowed research institutes has therefore been looked on as the saving feature in a distressing outlook. Sir Henry H. Dale,[3] the director of the National Institute for Medical Research in London, has pointed out in an inspiring address that investigation in that group of sciences which contribute to medicine entails certain special obligations. The practitioners of medicine are bound, by a tradition of long and honorable history, to place any new knowledge gained in the practice of their art freely at the disposal of their professional brethren, without any concealment or any attempt to restrict its use for private advantage. This tradition has no connection with any formal code of professional etiquette governing medical practice. Its basis is a recognition of an essential condition for the advance of medical science; and in recent years, as such advances have come in increasing measure from the research laboratories, the workers in these laboratories, whether medically qualified or not, have in many instances shown themselves eager to embrace this great medical tradition and to accept this freedom of the great medical brotherhood.

Here is an ideal that should not be abandoned. Dale further noted, however, that even laboratories supported by industrial enterprise can be, and not infrequently are, inspired genuinely by the ideals of the advancement of medical science and of service to suffering humanity.

The investigator in the medical sciences isolated in a detached laboratory not infrequently finds real advantage in the cooperation of the specially equipped laboratories of industrial organizations where programs can be prosecuted on a large scale or with unique facilities. The laboratories of the pharmaceutic industries are often helpless without the cooperation of clinical experts. Dale is inclined to doubt whether in the field of medical science the ideal relationship has yet been everywhere established, between research in the universities and the hospitals, on the one hand, and that associated with the pharmaceutic industry on the other. The finding and acceptance of a proper relationship, however, is vital, he says, to the progress of the two alike, and to their union in an ordered advance, along the common front of medical science and its applications.

2. Lee, F. S.: Scientific Features of Modern Medicine, New York, Columbia University Press, 1911.

3. Dale, H. H.: Academic and Industrial Research in the Field of Therapeutics, Science **77**: 521 (June 2) 1933.

DINITROPHENOL, A METABOLIC STIMULANT

Elsewhere in this issue appears a report by Cutting, Mehrtens and Tainter of Stanford University relative to the actions and uses of dinitrophenol (1:2:4), a preparation with the apparently remarkable power of stimulating metabolism enormously, producing pyrexia, and without such deleterious symptoms as would result from equivalent doses of thyroid gland. In this issue appears also a preliminary report by the Council on Pharmacy and Chemistry concerning this substance. Some years ago Joslin remarked that it was extremely fortunate that insulin is not effective by mouth, since otherwise numerous fatal accidents might follow its use. A drug with the potency and effects of dinitrophenol is a two-edged sword with appalling possibilities for harm as well as for good.

As a result of their investigations of the product, the investigators suggest as possible uses its application in myxedema to control the symptoms that result from insufficient metabolism in that condition. They find it especially valuable in obesity, although, as has been shown in several articles recently published in THE JOURNAL, it is possible to obtain the maximal weight loss by dietetic bookkeeping, controlling the food intake alone. On the other hand, it has apparently been possible with dinitrophenol to reduce weight without attempting any dietary restrictions.

Because of its action in producing pyrexia, it offers opportunity for study in relationship to fever treatment of various conditions. Thus the authors mention the possibility of raising the dosage in animals to such an extent that metabolism is increased fourfold and the animal produces heat so fast that it may be killed by the resulting fever.

Obviously the use of the preparation is too new to hazard final judgment as to its value in practical medicine. Apparently it has not been determined whether

or not there are cumulative effects from small doses repeated over long periods. With a drug of this potency, experiments on toxicity covering several years would not be too much to demand. The experience with cinchophen is still ripe in the minds of many clinicians. The possibility of hepatitis and even cirrhosis following the use of a drug with such remarkable powers in relationship to metabolism must be thoroughly investigated. Certainly for the present, at least, such investigations should be largely limited to controlled studies in hospitals by physicians competent in evaluating the effects of the drug, and with laboratory facilities capable of accurately determining blood, body tissue and other changes.

Current Comment

THE OAKLEY EXPERIMENT ON MOTTLED ENAMEL

In numerous American communities, the condition of the teeth known as mottled enamel exists among the residents as a local phenomenon, apparently resulting from a peculiarity of the water supply. Dean,[1] of the National Institute of Health of the United States Public Health Service, has found ninety-seven localities which have been referred to in the literature as areas where mottled enamel is demonstrable or confirmed by a survey of the locality. Recent investigators have placed the cause of this defect of the enamel of the teeth solely on the content of fluorine in the water supply. The interesting experience of the city of Oakley, an agricultural community in Idaho, points in that direction; indeed, according to McKay,[2] who made the survey, it adds the final proof. In the early twenties, Oakley residents became conscious that their children's teeth presented a disfiguring appearance. They saw that this condition did not exist in children who lived just outside the town but who came into town daily to school. About ten years earlier, Oakley began to use water from a spring in the hills, and six or seven years later this defect of the teeth first appeared. In 1925, McKay and Smith examined the school children of Oakley and found that every child who had used the city water supply during the period in which their enamel was undergoing calcification had mottled enamel on every surface of every permanent tooth. They found also that every child in school who lived outside the town was free from this defect. Following this dental survey, the town decided to change its water supply. McKay, who for years has studied this subject, had suggested in a previous report that a statistical study be made in some community six or seven years after the water supply had been changed. The opportunity came, and in February of this year he reexamined the children of Oakley, assisted by Dr. Smith, who also took part in the survey made in 1925. If something in the water used by these children during the period of calcification of the enamel caused the defect, the proof should be found in children born about the time the water supply was changed and who at the time of the reexamination had some of their permanent teeth. Such evidence was found at the recent reexamination. The children of Oakley were placed in groups according to their age. In those children born at the time of the change of the water supply or shortly after, there was not a single tooth found that was mottled. Practically all of a few children who at the time of the change of water were from 6 months to 1½ years of age were without mottled enamel. Few children who were from 2½ to 3½ years of age at the time of the change of the water showed any mottled enamel, but every one of the children who were 4½ years of age at the time of the change of the water supply had mottling of the enamel in some degree. The same was true of the children who were from 5½ to 7½ years of age when the change of water was made. One pupil was 11½ years old when the change of the water supply was made. All the teeth of this pupil, excepting the third molars, had been formed during the time this community used the old water supply, and all these teeth were typically mottled. The third molars, which were formed after the change in water, were calcified normally. In the interval of years between the two examinations in this community by McKay, investigators had established the relation between fluorine in the water and the occurrence of mottled enamel. The danger line in the fluorine content of water had been found to be about two parts per million. The former water supply of Oakley when examined by H. V. Churchill was found to contain six parts of fluorine per million; the new water supply has been found to contain less than one-half part per million. This experience completes the proof, McKay believes, of the relation between fluorine in the water and the presence of mottled enamel. It furthermore provides a definite procedure whereby communities that have had to face this problem may protect their children in the future.

1. Dean, H. T.: Distribution of Mottled Enamel in the United States, Pub. Health Rep. **48**: 703 (June 23) 1933.
2. McKay, F. S.: Mottled Enamel: The Prevention of Its Further Production Through a Change of the Water Supply at Oakley, Ida., J. Am. Dent. A. **20**: 1137 (July) 1933.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Tuesday and Thursday from 9:15 to 9:20 a. m., Chicago daylight saving time, which is one hour faster than central standard time, over Station WBBM (770 kilocycles, or 389.4 meters).

The subjects for the week are as follows:

July 18. Seashore vs. City Vacations.
July 20. Frozen Assets.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 9:45 to 10 o'clock over Station WBBM.

The subject for the week is as follows:

July 22. Some Facts About Moles.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Deaths from Scorpion Sting. — According to *Arizona Public Health News*, within the last two years six deaths from scorpion sting have been reported to the state board of health. Nearly all the six deaths occurred in children. In Arizona there are two species of scorpion, the desert scorpion and the so-called rock or mountain scorpion. The danger apparently depends on the kind from which the sting is received, its size and the age of the person stung.

CALIFORNIA

Personal. — Dr. John L. Pomeroy, health officer of Los Angeles County, was elected president of the Western Branch of the American Public Health Association at its fourth annual meeting in Pasadena, May 29-31.——Dr. Frank B. Galbraith has been appointed health officer of Alameda, succeeding Dr. Ralph W. Sanders, and Dr. Lloyd G. Tyler, San Rafael, health officer of San Anselmo, replacing Dr. Malcolm S. Edgar.

New Milk Ordinance.—A milk ordinance approved for San Francisco, May 15, reduces the maximum bacterial count in market milk from 150,000 nonpathogenic bacteria per millimeter to a maximum of 50,000. Other provisions of the ordinance effect changes in the selling and distribution of milk, which must be from cows that have been tuberculin tested, and in the pasteurization of milk and cream. It also establishes classification in the grading of milk. No herd shall be considered tuberculosis free if the reaction to the test is more than 10 per cent of the entire herd. Following the signing of the ordinance by the mayor, May 25, an injunction was granted the Natural Milk Producers' Association, halting enforcement of it.

FLORIDA

State Board Elects.—Dr. Corbett E. Tumlin, Miami, was named president of the state board of medical examiners at a meeting, June 12, succeeding Dr. Carl A. Williams, St. Petersburg. Dr. Simeon E. Driskell, Jacksonville, was elected vice president, and Dr. William M. Rowlett, Tampa, reelected secretary. Dr. Nicholas A. Baltzell, Marianna, resigned from the board to become a member of the state board of health.

Society News.—At a meeting of the Dade County Medical Society, April 7, Dr. Taylor Lewis, Miami, among others, spoke on "Human Sterilization as a Eugenic Measure." Dr. Gerard Raap, Miami, addressed the society, May 5, on "Abnormalities of the Vertebral Bodies." —— A symposium on obstetrics was conducted before the Duval County Medical Society, April 4, by Drs. James D. Pasco, Ferdinand Richards, Samuel R. Norris and Amasa D. Stollenwerck, all of Jacksonville. —— Dr. John J. Kindred, DeLand, addressed the Volusia County Medical Society in DeLand, April 11, on mental diseases.——Dr. Jack Halton, Sarasota, was installed as president of the Florida Railway Surgeons Association at its annual meeting in Hollywood, May 1, and Dr. Walter C. Page, Cocoa, named president-elect.——Robert M. Yerkes, D.Sc., New Haven, Conn., addressed the Tuberculosis Association of Duval County, May 12, on "Primate Tuberculosis." ——Dr. William C. Blake, Tampa, was elected president of the Florida Heart Association in Jacksonville, May 19, and Dr. George L. Cook, Tampa, secretary.——Speakers before recent meetings of the DeSoto-Hardee-Highlands County Medical Society at Sebring and Avon Park included Drs. Emory W. Bitzer, Tampa, and Merle C. Kayton, Wauchula, on essential hypertension and sinusitis, respectively.

GEORGIA

Donors of Medical Library Honored.—The donors of the A. W. Calhoun Medical Library, Atlanta, were honored at a dinner, May 31, at the Atlanta Athletic Club, commemorating the tenth anniversary of the founding of the library in memory of the late Dr. Abner W. Calhoun. The donors are Mesdames A. W. Calhoun, Stuart Witham, Junius Oglesby and Dr. F. Phinizy Calhoun. Dr. Stewart R. Roberts made an address on "The Books of Medicine and the Calhoun Library." The library, which is maintained in Emory Hospital, contains about 16,000 volumes and served 24,000 readers last year.

Emory Alumni Clinics. — The Alumni Clinic Week of Emory University School of Medicine, Atlanta, was held, June 6-9, at Grady Hospital, in conjunction with the Georgia State Board of Health and the U. S. Public Health Service Clinic on Venereal Diseases. Surgical clinics were held each morning and afternoon and a program of lectures was in progress throughout the day. Among more than fifty lecturers were Drs. Stewart R. Roberts, on "Present-Day Views of Digitalis: Its Actions and Use in Heart Disease"; Frank Lee Bivings, "Infantile Eczema"; Allen H. Bunce, "Treatment of Secondary Anemia," and Mark S. Dougherty, Jr., "Cirrhosis of the Liver." Dr. Weldon E. Person was chairman of the program committee.

ILLINOIS

Appointments to State Department of Registration.— Mr. John J. Hallihan has been appointed director of the state department of registration and education, succeeding Mr. Michael F. Walsh, and Eugene R. Schwartz as superintendent of registration, replacing Mr. Paul B. Johnson. Mr. Stanley Kiflewsky, Chicago, succeeds Mr. J. E. Edwards as chief inspector.

Chicago

Annual Golf Prize.—On his retirement as president of the Chicago Medical Society, June 21, Dr. Herman L. Kretschmer presented a silver cup to the Chicago Medical Society to perpetuate the memory of Dr. J. Warren Vanderslice, who died, Dec. 24, 1932. The winner of an annual golf tournament will have his name inscribed on the cup and may keep it for one year. Physicians eligible for the competition will be the officers and trustees and past presidents of the Chicago Medical Society and members of the council and officers of the branches of the society. The game is to be played between the annual election and Labor Day and will be arranged by a committee consisting of the president-elect, secretary and three members of the council.

Dr. Hektoen Becomes Professor Emeritus.—Dr. Ludvig Hektoen retired as professor of pathology, Division of Biological Sciences, University of Chicago, July 1, becoming professor emeritus. Dr. Hektoen, who is 70 years of age, has been professor and head of the department of pathology at the university since 1901. From 1895 to 1898 he was professor of morbid anatomy at Rush Medical College. Since that time he has been professor of pathology at the college. He occupied a similar position with the College of Physicians and Surgeons of Chicago from 1892 to 1894. Dr. Hektoen has been director of the John McCormick Institute for Infectious Diseases since 1902 and editor of the *Journal of Infectious Diseases* since 1904 and of the *Archives of Pathology* since 1926. He was three times chairman of the division of medical sciences of the National Research Council. Societies of which he has been president include the Chicago Medical Society, 1919-1921; Chicago Pathological Society, 1898-1902; Association of American Pathologists and Bacteriologists, 1901; Society of American Bacteriologists, 1929; Society of Immunologists, 1927; Institute of Medicine of Chicago, 1929. In 1909 he was vice president of the American Association for the Advancement of Science and for several years has been chairman of the Committee on Scientific Research of the American Medical Association.

INDIANA

Personal. — Dr. Howard Willard Byrn, Terre Haute, received the Ravdin Medal, given each year to the member of the graduating class who has made the highest average through the four years of the medical course at the University of Indiana School of Medicine, Indianapolis. The medal is given by Dr. Marcus Ravdin, Evansville.

Gift to Library.—More than 600 medical books from the library of the late Dr. Lewis P. Drayer have been given to the library of St. Joseph's Hospital, Fort Wayne, by his daughter, Mrs. Scott Snyder. The gift increases the hospital's library to nearly 1,500 volumes, the majority of which have been donated recently by Fort Wayne physicians, newspapers reported.

Society News. — Dr. Harold M. Trusler, Indianapolis, addressed the Franklin-Fayette County Medical Society, June 13, on "Reconstruction of Burns and Scar Tissue." —— Dr. Robert M. Moore, Indianapolis, was guest speaker at a recent meeting of the Carroll County Medical Society, Burlington, on "The Failing Heart."——The Gibson County Medical Society was addressed at Princeton, June 12, by Drs. Karl S. Strickland, Owensville, on "Diphtheria and Its Complications" and Martin L. Arthur, Patoka, "Differential Diagnosis of Scarlet Fever."

Dr. Harvey Appointed State Health Commissioner.—Dr. Verne K. Harvey, Indianapolis, has been appointed state health commissioner, succeeding Dr. John H. Hare, Indianapolis, newspapers reported. When the state board of health was recently replaced by an advisory committee, Dr. Hare was named executive secretary to carry on the executive work of the department, succeeding Dr. William F. King, who had been health commissioner since 1922. Dr. Harvey is 34 years of age and a 1929 graduate of the Indiana University School of Medicine, Indianapolis. He has been associated with the state board of health as epidemiologist. Dr. Hare will replace Dr. Charles E. Laughlin as superintendent of the Evansville State Hospital. The latter had occupied the position since 1903.

Anniversary of Medical Practice Observed.—Ninety-two photographs of physicians who had practiced in the county during the last hundred years were presented to the Wabash County Medical Society at its meeting in Wabash, June 7, by Dr. James T. Biggerstaff, who has been doing historical research for the society. These photographs were the only ones available of the 212 physicians who had practiced in the county during the century of medical practice, the anniversary of which was observed by the medical society at this meeting. The photographs are now hanging in the reception room at the Wabash County Hospital. Dr. John H. Reed, Logansport, made the presentation address on "The Valley of Vision of a Century of the Practitioners of Medicine and Surgery in Wabash County in 100 Years." The first medical practitioner located in Wabash County in May, 1833.

IOWA

Executive Secretary Appointed.—At the recent annual session of the Iowa State Medical Society, through an amendment to the by-laws, the position of executive secretary was created. Mrs. Dorothy McCarthy was appointed to the position for one year, beginning June 1.

Dinner to Dr. Bierring.—The Des Moines Academy of Medicine and Polk County Medical Society gave a banquet and reception in honor of Dr. Walter L. Bierring, Des Moines, President-Elect of the American Medical Association, June 26, at the Wakonda Club. Dr. Fred Moore served as toastmaster and addresses were made by Dr. Bierring and Major-Gen. Merritte W. Ireland, Washington, D. C., former surgeon general of the U. S. Army. Drs. Everett D. Plass, Iowa City, and Thomas F. Thornton, Waterloo, who with Dr. Moore were members of the House of Delegates at the Milwaukee session of the American Medical Association, attended the banquet.

Society News.—Dr. Thomas F. Suchomel, Cedar Rapids, was elected chairman of the Military Surgeons Club of the Iowa State Medical Society at its annual meeting, May 10.—— Dr. Howard E. Campbell, Anita, gave a paper on "External Injuries to the Abdominal Viscera" before the Cass County Medical Society in Atlantic, May 16.——The Chickasaw County Medical Society heard Dr. Jesse Carl Painter, Dubuque, discuss "Childhood Types of Tuberculosis" at a meeting, recently, and Dr. Edward C. Nowak, New Hampton, "Eye Injuries."—— Dr. Harold H. Webb, Ottumwa, was among the speakers before the Davis County Medical Society in Bloomfield, May 26; his subject was "Nontuberculous Conditions of the Chest." ——A symposium on allergy was presented before the Woodbury County Medical Society, recently, by Drs. Louis J. Frank and Thomas R. Gittins, Sioux City. Dr. Joseph C. Ohlmacher, Vermilion, S. D., addressed the society, May 25, on kidney diseases.——A paper, prepared and read by Dr. J. D. Miles, Crawfordsville, in September, 1874, was presented before the Tri-County Medical Society (Henry, Jefferson and Washington) by Dr. Clyde A. Boice, Washington; its title was "Compound Fracture of the Tibia and Fibula, Treated by the Antiseptic Method."—— Dr. Daniel J. Glomset, Des Moines, addressed the Marshall County Medical Society, June 6, on nephritis.

KANSAS

Society News.—Dr. Arthur E. Hertzler, Halstead, addressed the Butler-Greenwood Counties Medical Society in El Dorado, May 12, on "Dysmenorrhea with Particular Relation to Endocrine Origin."——The Clay County Medical Society sponsored a clinic on skin diseases by Drs. Paul F. Stookey and Hubert Parker, Kansas City, Mo., May 10; in the evening, the physicians lectured on "Treatment of Syphilis" and "Pharmacology of Antisyphilitic Drugs," respectively.——Dr. Henry N. Tihen, Wichita, addressed the Sedgwick County Medical Society, May 16, on his observation of European practice, under the title of "Medical Medley."——At a meeting of the Shawnee County Medical Society, May 1, the speakers were Drs. Clarence K. Schaffer, Topeka, on "Hemicranial Atrophy" and William C. Menninger, Topeka, "Rôle of Financial Losses in the Precipitation of Mental Illness."

MARYLAND

Personal.—The National University of Ireland, Dublin, conferred the honorary degree of doctor of science on Dr. Dean Lewis, professor of surgery, Johns Hopkins University School of Medicine, Baltimore, recently.—— Dr. Howard A. Kelly, emeritus professor of gynecology, Johns Hopkins University School of Medicine, Baltimore, received the honorary degree of doctor of laws from Washington College, Chestertown, recently.

Spotted Fever.—Twenty-eight cases with five fatalities from spotted fever occurred in Maryland from the middle of May to the latter part of June. Ten cases were reported in Carroll County, seven in Anne Arundel County, two each in Dorchester and Somerset counties, and one each from Baltimore, Caroline, Frederick, Howard, Kent, Montgomery and Wicomico counties. Two deaths occurred in Carroll County, two in Anne Arundel County and one in Somerset County. Rocky Mountain spotted fever was first recognized in Maryland in 1929, when seven cases, diagnosed as typhus fever, were investigated. From 1930 to 1932, inclusive, 127 cases of spotted fever were reported to the state department of health, 104 with sixteen deaths from the counties, and 23 cases with five deaths from Baltimore. One of the deaths attributed to the counties occurred in Washington, but the disease was contracted in Maryland.

MICHIGAN

Veteran Physicians Guests of Honor.—Ten graduates of the Detroit College of Medicine and Surgery were guests of honor at the annual banquet and clinic, June 5, in recognition of their having spent fifty years in the practice of medicine. The honor guests of their alma mater were Drs. Charles G. Jennings, who received his degree in 1879; Hugo Erichsen, Birmingham, 1882; Walter J. Cree, 1883; Lewis E. Maire, 1881; B. C. H. Spencer, Rochester, 1881; John A. Wessinger, Ann Arbor, 1882; Hiram Holden, Trenton, 1883; John McKinlock, Chicago, 1883; William H. German, Chicago, 1883, and Stanley G. Miner, Detroit, 1882. The program of the alumni reunion consisted of clinics by Drs. George W. Crile, Cleveland, and Walter C. Alvarez, Rochester, Minn., on thyroid diseases and recent discoveries in the physiology of the gastrointestinal tract, respectively. Dr. Crile was the dinner speaker, on "Orthogenesis and the Power and Infirmities of Man."

NEBRASKA

Society News.—Drs. Samuel M. Hibbard and Arthur H. Haynes, Sabetha, Kan., addressed the Richardson County Medical Society, Falls City, May 18, on eclampsia and urinary infections of children, respectively.——Speakers at a meeting of the Cedar, Dakota, Dixon, Thurston and Wayne Counties Medical Society, Newcastle, June 15, were Drs. John D. Lutton, Laurel, "Trichomonas Vaginalis Vaginitis"; Antonius A. Larsen, Homer, "Management of Obstetrics in the Home," and Paul F. Siman, Wayne, "Pneumonia."——Drs. Henry J. Lehnhoff, Lincoln, and Merton O. Arnold, St. Paul, addressed the Hall-Merrick-Howard County Medical Society, Grand Island, May 18, on "Pathologic Changes of the Myocardium" and "Renal Obstruction," respectively.

Creighton University News.—Faculty changes at Creighton University School of Medicine include six appointments and ten promotions. The appointment of Dr. Augustus G. Pohlman, former dean of the University of South Dakota School of Medicine, as professor and head of the department of anatomy, was noted in THE JOURNAL, June 10. The following others are announced: Drs. George K. Fair, Charles J. Fogarty, William J. Egan and William M. Dendinger, assistants in medicine, and John E. Courtney, assistant in surgery. Those who were promoted are:

Dr. James F. Kelly, professor of roentgenology and head of the department.
Dr. Arthur C. Johnson, assistant professor of surgery.
Dr. John F. Gardiner, assistant professor of medicine.
Dr. William H. Schmitz, assistant professor of urology.
Drs. Norman H. Atwood and Edward S. Maloney, instructors in medicine.
Dr. Maynard M. Greenberg, instructor in ophthalmology.
Dr. Clarence S. Moran, instructor in pathology.
Drs. Leo P. Coakley and Frederic M. Watke, instructors in otorhinolaryngology.

A portrait of the late Dr. Hermann von W. Schulte, dean of the medical school from 1917 till his death in 1932, was presented recently to the university by the medical faculty. Dr. Bryan M. Riley, professor and head of the department of medicine, made the presentation speech and President Patrick

J. Mahan, S.J., the speech of acceptance for the university. The three upper classes in the medical school also presented a set of anatomic models as a memorial to Dr. Schulte.

NEW JERSEY

Personal.—Dr. Jesse B. Thompson, Atlantic City, recently entertained at dinner twenty alumni of the class of 1888 of the University of Pennsylvania School of Medicine.——Dr. William A. Pinkerton, Bayonne, was recently named head of the obstetric department of Bayonne Hospital.——Dr. Pellegrino A. D'Acierno, Union City, was elected president of the New Jersey Italian State Medical Society, at a meeting, May 26, in Newark.

NEW YORK

Dinner to Dr. Flaherty.—The Onondaga County Medical Society recently sponsored a testimonial dinner to Dr. Frederick H. Flaherty, Syracuse, in honor of his succession to the presidency of the Medical Society of the State of New York. Among speakers were Drs. Arthur J. Bedell, Albany, president-elect of the state society; Thomas P. Farmer, Syracuse, president of the county society; Thomas Parran, Jr., Albany, state health officer; Arthur W. Booth, Elmira, and Grant C. Madill, Ogdensburg, and Lorenz Brosnan, legal counsel for the state society.

New York City

Society News.—Dr. Arial W. George, Boston, addressed the New York Roentgen Society, May 15, on "Medicolegal Expert Testimony as It Applies to the Roentgenologist."——Dr. Ronald T. Grant, London, England, addressed the section of medicine of the New York Academy of Medicine, in May, on "Prognosis of Heart Disease."——The International and Spanish-Speaking Association of Physicians, Dentists and Pharmacists celebrated the fifth anniversary of its founding, May 21, at a reception at the home of the president, Dr. Jacob M. Gershberg.

A Million Children Immunized.—The immunization of the millionth child in New York against diphtheria was recently made the occasion of a celebration in Central Park, in which medical and health leaders and 5,000 school children took part. Dr. William H. Park, director of laboratories in the New York City Department of Health, immunized the millionth child at the Meinhard Memorial Health Center and Dr. Béla Schick, "the first of the second million." At the park celebration which followed, Mayor O'Brien, Health Commissioner Shirley W. Wynne and Drs. Park and Schick made addresses, after which children of various national groups presented folk dances. It was explained that from 1916, when diphtheria immunization was first made available in the United States, until 1929, only 260,000 children in the city had received the treatment. In the latter year the Diphtheria Prevention Commission began its intensive three-year campaign, at the end of which 522,063 more children had been treated. Since the dissolution of the committee the health department has continued the drive, which brought the total to a million. There remain about 700,000 unimmunized children in the city, the department reports. A similar celebration marking the immunization of the four hundred thousandth child in Brooklyn was held in Prospect Park, June 24, the climax of a four weeks drive.

Historic Petition Found at Columbia.—The petition that led to the establishment of the College of Physicians and Surgeons of Columbia University has recently been found, after having been lost for 165 years, the New York *Times* reports. The document with several others was discovered in an old chest in the rear of the vaults under the Columbia University Library. Five physicians signed the petition: Samuel Clossy, Peter Middleton, James Smith, John Jones and Samuel Bard, the latter of whom was dean and later president of the medical school. The petition was addressed to the governors of Kings College, Aug. 4, 1767, and the school opened November 2 of the same year. It was suspended during the Revolutionary War and was reestablished in 1784 as the Columbia School of Medicine, but active teaching was not carried on until 1791, according to the archives. In 1814 the Columbia school was merged with the College of Physicians and Surgeons, which had been established in 1807. The first course of lectures given at the school was described thus in the petition:

> It is proposed to give a Course of Lectures in the Winter Season upon each of the following Branches of Medicine, viz.: Anatomy by Doctr. Samuel Clossy; Physiology and Pathology by Doctr. Peter Middleton; The Theory and Practice of Physick by Doctr. Samuel Bard; the Theory of Chirurgy with a Course of Operations upon the Human body by Doctr. John Jones; Chemistry by Doctr. James Smith with the Materia Medica.

The founders asked no emoluments for their services but did ask that "these professorships shall at least have all that exterior Dignity, and every honorary Mark of Respect, which is in your Power to bestow."

NORTH DAKOTA

Society News.—Drs. Joseph G. Parsons and Chester L. Oppegaard, Crookston, Minn., were guests at the annual meeting of the North Dakota Academy of Ophthalmology and Otolaryngology in Valley City, June 1. They presented a discussion of "Block Anesthesia in Otolaryngology." Dr. Henry O. Ruud, Grand Forks, was elected president and Dr. Frederick L. Wicks, Valley City, secretary. The fall meeting will be held at Rochester, Minn., in conjunction with the South Dakota academy.

OHIO

Rating Service Extended to Private Practice.—A plan recently adopted by the Cleveland Academy of Medicine for investigation of the financial condition of patients unable to meet full charges for medical service has now been placed at the disposal of any member of the academy who wishes to send patients for ratings. The patient will pay a fee of 50 cents to the bureau of social service, which is under the direction of a trained worker. The development of social service as an adjunct to the private practice of medicine is said to be unprecedented. The bureau plans also to advise families in preparing budgets to allow for the exigencies of illness.

Society News.—Dr. Frederick R. Crowgey, Salem, addressed the Columbiana County Medical Society, Lisbon, July 11, on "Correlation of Surgery with Medicine."——Physicians of four counties attended a meeting sponsored by the Defiance County Medical Society, Wauseon, June 16, at which speakers were Drs. Howard R. Hartman, Rochester, Minn., on treatment of duodenal ulcer, and Charles Mayo, Rochester, chronic and acute intussusception, and J. Howard Brown, D.Sc., Baltimore, relation of milk to disease.——Dr. Frank W. Harrah, Columbus, addressed the Fayette County Medical Society, Washington Courthouse, June 1, on significance of abdominal pain.——Drs. Donald F. McGrath and Raymond C. King, Toledo, addressed the Auglaize County Medical Society, Minster, June 7, on "Analgesia and Anesthesia During Labor" and "Common Obstetrical Complications," respectively.——Dr. Louis Mark, Columbus, addressed the Belmont County Medical Society, Bellaire, June 1, on "The Rôle of Surgery in Tuberculosis."——Dr. John H. J. Upham, Columbus, addressed the Jefferson County Medical Society, Steubenville, May 26, on "Costs of Medical Care."

PENNSYLVANIA

An Exhibit of Hobbies.—The final meeting for the season of the Allegheny County Medical Society, Pittsburgh, June 20, was distinguished by an exhibit of the hobbies of members. Various types of art work were shown by Drs. Joseph H. Barach, Homer W. Grimm, Howard H. Permar, John G. Wurtz, John Chornyak, Warren A. Wolf and Walter E. Brown. Photography was displayed by Drs. Morris A. Hershenson and Daniel F. Jackson; collections of books and bookbindings by Drs. James D. Heard, Ralph V. Robinson, John A. Hagemann and Norman R. Goldsmith. Dr. James R. Johnston exhibited a collection of letters; Drs. Mortimer Cohen and John K. Musgrave, woodcraft; Drs. William J. McGregor and Daniel A. Atkinson, ballistic displays; Dr. Benjamin Levant, music; Dr. Harry C. Westervelt, antique glass; Dr. Victor W. Cowan, butterflies; Dr. Hagemann, unique walking sticks; Dr. William H. Gardner, monographs, and Dr. Johanna T. Baltrusaitis, minerals and petrified wood. Dr. Harry N. Malone displayed a post-revolutionary copy of "The Vermont Union" and sketches by Dr. Albert G. Walter, a famous Pittsburgh surgeon who died in 1876. On the formal program Dr. Thomas B. Carroll made a farewell address as outgoing president; Russell J. Ferguson, associate professor of history, University of Pittsburgh, discussed "Contributions of the Physician to the Social and Cultural Development of Society"; Rev. Clarence E. Macartney, pastor of the First Presbyterian Church of Pittsburgh, "St. Paul's Thorn in the Flesh and His Physician" and Dr. Theodore Diller, history of the society.

Philadelphia

H. K. Mulford Honored.—The Philadelphia College of Pharmacy and Science at its one hundred and eleventh commencement, June 7, conferred the honorary degree of master in pharmacy (honoris causa) on Henry K. Mulford, director of biological and research laboratories of the National Drug Company, Philadelphia. Mr. Mulford was the founder and for many years directing head of the H. K. Mulford Company and is now president of the Mulford Colloid Laboratories in addition to his connection with the National Drug Company. He was graduated from the Philadelphia College of Pharmacy and Science in 1887.

TENNESSEE

Society News.—Dr. George W. Crile, Cleveland, addressed the Davidson County Medical Society, Nashville, May 19, on "Diseases Peculiar to Civilized Men."——Dr. John Henry Schroder, Cincinnati, spoke on "Clinical Aspects of Indigestion" before the Gibson County Medical Society, May 22, and Dr. Robert C. Derivaux, Nashville, "Heart and Blood Vessels in Diabetes."——Dr. James M. Waters, Walland, addressed the Blount County Medical Society, June 27, on "Heredity Versus Environment."——Dr. Richmond McKinney, Memphis, presented a paper on "Treatment of Malignant Disease of the Tonsils by Radium and X-Rays" and Drs. Russell A. Hennessey and Alfred D. Mason, Jr., one on "Traumatic Injuries of the Urinary Tract," before the Memphis and Shelby County Medical Society, June 6.——Dr. James M. J. Vandegriff, Fountain City, addressed the Knox County Medical Society, Knoxville, June 20, on "Trench Mouth."——The Washington County Medical Society held a special meeting, June 1, in Johnson City, marking the thirtieth anniversary of the granting of its charter. Dr. Joe T. Smith, Knoxville, was the guest speaker, giving an address on the thymus gland. Drs. Edwin A. Long and William J. Matthews, Johnson City, reviewed the society's history.

TEXAS

Personal.—Dr. Joseph Herbert Page, Houston, has been named full time health officer of Harris County.——Dr. Ellen D. Furey has accepted a position on the teaching staff of the department of pathology of the University of Minnesota School of Medicine, Minneapolis, it is reported. She recently resigned as adjunct professor of pathology at the University of Texas School of Medicine, Galveston, to do graduate work at Minnesota.

Gift to Medical School.—A collection of the late Dr. N. N. Allen, an early professor of surgery at the state medical college at Galveston, was recently presented to the institution by the physician's daughter, Mrs. George Osborne, Hempstead. The collection, which includes books, photographs and letters, will be used in writing a history of the college and of medicine during the early days of Texas, newspapers reported. Dr. Allen served as professor of surgery at the medical school both while it was a part of Soule College of Chapel Hill and after it became a part of the University of Texas.

Society News.—Dr. John A. McIntosh, San Antonio, was elected president of the Texas Neurological Society at the annual meeting in Fort Worth; Dr. Everett C. Fox, Dallas, of the Texas Dermatological Society; Dr. Clark A. Wilcox, Wichita Falls, of the Texas Radiological Society and Dr. William A. Lee, Denison, of the Texas Railway Surgeons' Association.——The Lamb County Medical Society was recently formed at a meeting in Littlefield, with Drs. James R. Coen and John G. Little, both of Littlefield, as president and secretary, respectively.——The North Plains Medical Society, composed of Sherman, Moore, Dallam and Hartley counties, was recently organized with Dr. Evans P. Stewart, Stratford, as president, and Dr. Victor R. Moore, Dalhart, secretary.

Health at San Antonio.—Telegraphic reports to the U. S. Department of Commerce from eighty-five cities with a total population of 37 million for the week ended July 1 indicate that the highest mortality rate (18.3) appears for San Antonio and the rate for the group of cities as a whole, 10.2. The mortality rate for San Antonio for the corresponding period last year was 10.6 and for the group of cities, 10.1. The annual rate for eighty-five cities for the twenty-six weeks of 1933 was 11.5, as against a rate of 12 for the corresponding period of 1932. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

WASHINGTON

Personal.—Dr. John S. McBride has been reappointed health commissioner of Seattle for a term of five years; he completed the unexpired term of Dr. Erestus T. Hanley.——Dr. Harry Eugene Allen, Seattle, has been appointed chief medical adviser to the state department of labor and industries.——Dr. Elmer Hill, Walla Walla, has been appointed physician to the state penitentiary.——Dr. Erval R. Coffey of the U. S. Public Health Service has been appointed secretary of the state department of health by Governor Martin.——Dr. William N. Keller, Tacoma, has succeeded Dr. Charles E. Taylor as superintendent of the Western Washington State Hospital, Fort Steilacoom. He occupied the position from 1914 to 1922.

WYOMING

Tri-State Meeting Postponed.—A joint meeting of the state medical societies of Wyoming, Utah and Idaho, which was to have been held at Yellowstone Park, August 6-8, has been postponed till 1934. Wyoming will have no state meeting this year. The present officers will continue until the next annual meeting of the association.

GENERAL

Results of Special Examinations.—Forty applicants passed the examination of the American Board of Obstetrics and Gynecology held at the Milwaukee General Hospital, Milwaukee, June 13. Three were conditioned and one failed.

Detroit Wins Health Conservation Award.—Detroit won first prize for health conservation among cities of more than 500,000 population in the annual health conservation contest conducted by the United States Chamber of Commerce. Winners in other population groups were: Cincinnati, cities from 250,000 to 500,000; Syracuse, N. Y., and New Haven, Conn., tied among cities from 100,000 to 250,000; East Orange, N. J., 50,000 to 100,000; Brookline, Mass., 20,000 to 50,000, and Lodi, Calif., under 20,000.

Visit to French Spas.—One hundred American physicians have been invited to visit French thermal and climatic resorts as guests of the French government, July 21 to August 23. The number includes wives of members of the party. The group will have a private train at its disposal in France and is to be officially entertained in the various spas. Information may be obtained from Dr. David J. Kaliski, 70 East Eighty-Third Street, New York, who will be in charge of the party, which will leave New York, July 21, on the S. S. *Lafayette* and leave Le Havre for New York on the S. S. *Paris*, August 23.

Warning Against Impostor.—Complaints have recently reached the Better Business Bureau of St. Louis concerning a woman named Alice Bell, who claims to sell professional uniforms. She says she represents the Wear-Well Manufacturing Company, 1717 Olive Street, St. Louis, and collects down payments for uniforms which are never delivered. Investigation revealed that no such firm is known at the address given. The woman is reported to be between 35 and 40 years old, about 5 feet 6 inches tall and a brunette with brownish gray eyes. One report stated that she wore Oxford type eye glasses of white gold and that she has poor teeth. She tells the physician that she is not working on commission and it makes no difference whether her orders are large or small. It is reported that she may now be in Washington or Oregon.

Health Authorities Elect.—Dr. Frederick D. Stricker, Portland, Ore., state health officer and secretary of the Oregon State Medical Society, was elected president of the State and Provincial Health Authorities of North America at its forty-eighth annual conference in Washington, D. C., June 5-6. Dr. William Warwick, chief medical officer, Fredericton, New Brunswick, was made vice president, and Dr. Albert J. Chesley, state health officer of Minnesota, secretary, reelected. Dr. Edward H. Cary, Dallas, Texas, then President of the American Medical Association, was among the speakers on "Relations of the Private Physician to the Health Department," and Dr. Dean Lewis, Baltimore, then President-Elect of the Association, "The Attitude of the Medical Profession Toward the Rural Health Unit," and Surg. Gen. Robert U. Patterson, U. S. Army, "Army Responsibility for Civilian Conservation Corps." Following this meeting was the conference of state and territorial health officers with the U. S. Public Health Service. Speakers included Drs. Goldsborough F. McGinnes, Richmond, on "Recent Diphtheria Studies in Virginia," and Allen W. Freeman, Baltimore, "A Plan for Tuberculosis Control."

Bequests and Donations.—The following bequests and donations have recently been announced:

River Crest Preventorium of the Kensington Dispensary for Treatment of Tuberculosis, Philadelphia, will eventually receive $105,000 from the estate of Oscar L. Long.

Methodist Episcopal Hospital, $40,000; St. Vincent's Hospital, $2,000, and the James Whitcomb Riley Hospital for Children, the residue of the estate after a number of other bequests have been made, by the will of Edmund Zoller; all the institutions are in Indianapolis.

Montefiore, Mount Sinai and Beth Israel hospitals, New York, $7,500 each by the will of the late Isaac Marks, Mount Vernon, N. Y., and Lebanon Hospital and the New York Dispensary, $5,000 each.

Episcopal Hospital and American Oncologic Hospital, Philadelphia, $3,000 and $2,000, respectively, by the will of Catherine B. Davis.

Presbyterian Hospital, Philadelphia, $5,000 for an endowed bed, under the will of Mrs. Elizabeth W. Hildeburn.

St. Luke's and Roosevelt hospitals, New York, $10,000 each to establish free beds for "persons of gentle birth" who cannot afford hospital care.

Nassau Hospital, Mineola, L. I., $150,000 by the will of the late Ormond G. Smith.

Northern Dispensary, New York, $5,000 by the will of the late Col. Robert Lewis Harrison.

Lenox Hill Hospital, New York, $20,000, by the will of Rudolf A. Metz and $25,000 by the will of Mrs. Anna Woerishoffer.

St. Mary's, Brownsville and East New York, Beth Moses and Israel Zion hospitals, $2,500 each; Jewish Hospital, $5,000 by the will of Alois Lazansky. All the institutions are in Brooklyn.

Children's Memorial Hospital, Chicago, $10,000 from the estate of Mrs. Clara F. Bass.

Grant Hospital, Chicago, $10,000 from the estate of Mrs. Helen Moeng.

Highland Park Hospital, Highland Park, Ill., $25,000 from the estate of H. H. Hitchcock.

Good Samaritan Hospital, Lexington, Ky., $250,000 from the estate of H. L. Ott.

New Hampshire Memorial Hospital for Women and Children, Concord, $75,000 from the estate of Charles H. Ames.

Temple University Hospital, Philadelphia, $300,000 from the estate of Mrs. Etta Mellier.

Mount Sinai Hospital, New York Homeopathic Medical College and Flower Hospital, Hospital for Joint Diseases, all of New York, $5,000 each under the will of Leah J. Simpson.

Stuyvesant Square Hospital, New York, $200,000 by the will of William Halls, Jr.

Pottsville and Good Samaritan hospitals, both of Pottsville, Pa., each $5 000 by the will of the late Samuel Rowland, Schuylkill Haven, Pa.

James Whitcomb Riley Hospital, Indianapolis, $4,200 by the will of Kate S. Parker, and $5,000 by the will of Susan D. Forst.

Pekin Public Hospital, Pekin, Ill., $5,000 from the estate of Mrs. Mary Van Orstrand.

St. Vincent's Hospital, New York, $65,000 from the estate of Miss Margaret Crane Hurlburt.

FOREIGN

Liverpool Limits Enrolment.—The dean of the Faculty of Medicine of the University of Liverpool, England, has informed the American Medical Association that there are no vacancies for foreign students. In addition, the dean stated that the number of local students would be limited.

Medicolegal Journal.—The *Medico-Legal and Criminological Review* has recently appeared as the official organ of the Medico-Legal Society of London. It will publish quarterly transactions of the society, original articles, abstracts, proceedings of foreign societies, reviews of books dealing with forensic medicine and criminology, and correspondence. Dr. Gerald M. J. Slot and Mr. Everard Dickson are joint editors.

New Hospital in North China.—The *Chinese Medical Journal* reports the opening of a new hospital at Wutingfu in north Shantung by the United Methodist Mission. The hospital has seventy beds and with its modern equipment, much of which was an innovation in the district, cost $75,000 in local currency. It is about eighty miles in several directions from the nearest hospitals and members of its staff are the only physicians, with one exception, for the 3,000,000 or more inhabitants in the area served by the new institution.

Medal Awarded.—Dr. Saul Adler, professor of parasitology at the Hebrew University in Jerusalem, received the Chalmers Gold Medal of the Royal Society of Tropical Medicine and Hygiene of England, at a meeting of the society's council, June 15, according to the New York *Times*. The honor was given to Dr. Adler in recognition of his work as director of the kala-azar commission sponsored by the society and the university in 1930-1932 in Italy and Malta. He recently received the Laveran Medal of the Société de Pathologie Exotique of France for the same work. A graduate of Leeds University, England, Dr. Adler was engaged in research at Sierra Leone, Africa, before going to Hebrew University in 1924.

Personal.—Dr. Edwin Matthew, Edinburgh, was recently elected to represent the Royal College of Physicians of Edinburgh on the General Council of Medical Education and Registration of the United Kingdom for a term of five years.——Dr. Edward Mellanby has resigned from the chair of pharmacology at University of Sheffield to accept the Sheild chair of pharmacology in the University of Cambridge.——Dr. Alban Köhler, Wiesbaden, Germany, received the Rieder Gold Medal of the German Roentgen Society at its meeting in April. The medal has been awarded previously to the late Guido Holzknecht, Vienna, and Gösta Forssell, Stockholm.——Dr. Geoffrey Hadfield, pathologist of the Royal Free Hospital in London, has been appointed to the chair of pathology at the University of Bristol to succeed Prof. I. Walker Hall.——Dr. Wilhelm His, University of Berlin, received the Carl Ludwig Medal for 1933. The medal is awarded every year by the German Society for Cardiac Research for outstanding services in research on the circulation.

Deaths in Other Countries

Juliano Moreira, general director of the Psychiatric Institute of Rio de Janeiro; founder and permanent president of the Brazilian Society of Psychiatry, Neurology and Legal Medicine; honorary member of scientific societies in many parts of the world; delegate from Brazil to numerous international medical congresses; died, May 2; aged 60.

Government Services

Physicians in Conservation Camps

Nine hundred and fifty-nine physicians have been assigned to the work of rendering medical care and treatment to 240,514 men in the Civilian Conservation Forestry Camps and Army Reconditioning Camps. The number includes 472 members of the Medical Reserve Corps, 126 army medical officers, 203 naval medical officers, 82 physicians on full time contract basis and 76 on part time contract. Officials of the War Department estimate that 200 more physicians will be required as soon as a total of 300,000 men in camps has been reached. Nine hundred camps are now in operation out of a total of 1,639 planned. Officers of the Medical Reserve Corps with the rank of lieutenant or captain and other physicians desiring such service should make application to the commanding general of the corps area in which they live. Below is a list of corps areas and states included in each:

First Corps Area.—Headquarters, Army Base, Boston 9, Mass. States included: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut.

Second Corps Area.—Headquarters, Governors Island, New York. States included: New Jersey, Delaware and New York.

Third Corps Area.—Headquarters, U. S. Postoffice and Court House, Baltimore, Md. States included: Pennsylvania, Maryland, Virginia and the District of Columbia.

Fourth Corps Area.—Headquarters, Fort McPherson, Georgia. States included: North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee. Mississippi and Louisiana.

Fifth Corps Area.—Headquarters, Fort Hayes, Columbus, Ohio. States included: Ohio, West Virginia, Indiana and Kentucky.

Sixth Corps Area.—Headquarters, 1819 West Pershing Road, Chicago, Ill. States included: Illinois, Michigan, Wisconsin, Post of Jefferson Barracks, Missouri, and Arcadia Target Range, Arcadia, Mo.

Seventh Corps Area.—Headquarters, Baird Building, Omaha, Neb. States included: Missouri, Kansas, Arkansas, Iowa, Nebraska, Minnesota, North Dakota and South Dakota.

Eighth Corps Area.—Headquarters, Fort Sam Houston, San Antonio, Texas. States included: Texas, Oklahoma, Colorado, New Mexico, Wyoming and parts of Arizona.

Ninth Corps Area.—Headquarters, Presidio of San Francisco, Calif. States included: Washington, Oregon, Idaho, Montana, Utah, Nevada, California and portion of Arizona.

Army Personals

Lieut. Col. Charles W. Haverkampf, Fitzsimons General Hospital, will proceed to his home and await retirement, for the convenience of the government.

Major Michael G. Healy, relieved at the School of Aviation Medicine, Randolph Field, Texas, and assigned for duty in the Hawaiian Department.

Major Patrick F. McGuire, Fort Sam Houston, Texas, will proceed to his home and await retirement, for the convenience of the government.

Col. Levy M. Hathaway, ordered to proceed to his home to await retirement, for the convenience of the government.

Col. Harold W. Jones, relieved at Fort Sam Houston, Texas, and assigned to the Hawaiian Department.

Col. Edward B. Vedder was to proceed to his home about June 22 to await retirement, for the convenience of the government.

Lieut. Col. Guy V. Rukke, having been found disqualified for the duties of a colonel in the medical corps by reason of disability incident to the service, his retirement with the rank of colonel is announced.

Major Francis W. Gustites, on completion of his present tour of foreign service in the Canal Zone, is assigned to Fort Bragg, N. C.

Major John C. Woodland, on completion of his present tour of service in the Canal Zone, is assigned to Army and Navy General Hospital, Hot Springs National Park, Ark.

New Editor of Naval Journal

Commander Louis H. Roddis, U. S. Navy Medical Corps, has been ordered to the Bureau of Medicine and Surgery to take charge of the division of publications, succeeding Lieut. Comdr. John Harper. In this capacity he will be editor of the *Naval Medical Bulletin.*

Change of Station in the Navy

Capt. John F. Murphy, from command of Navy Hospital, Charleston, S. C., to Navy Yard, Philadelphia.

Lieut. Comdr. Martin Donelson, from Navy Hospital, Great Lakes, to U. S. S. *Lexington.*

Lieut. Comdr. Lewis W. Johnson, from Navy Hospital, Great Lakes, Ill., to U. S. S. *Louisville.*

Lieut. Comdr. James B. Moloney, from U. S. S. *Louisville,* to Navy Hospital, Mare Island.

Lieut. Comdr. William P. Mull, from U. S. S. *Mississippi* to Navy Dispensary, Washington, D. C.

Lieut. David O. Zearbaugh, from U. S. S. *Patoka* to U. S. S. *Arizona.*

Comdr. William E. Eaton, from U. S. S. *Lexington* to Naval Hospital, Newport, R. I.

Comdr. Carleton I. Wood, from Naval Hospital, Great Lakes, Ill., to U. S. S. *Mississippi.*

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 24, 1933.

Is Health Insurance Becoming a Dole?

In his presidential address to the Section of Preventive Medicine, Sir Henry Brackenbury, chairman of the council of the British Medical Association, asked: "Is it possible that the national health insurance scheme is becoming not primarily a method of securing medical advice for the insured but primarily a machine for doling out to them small sums of money week by week or month by month?" "Today, more than ever," said Sir Henry, "I find public attention concentrated on the cash benefits which may be claimed rather than on the medical attention. To a not inconsiderable degree the national health insurance system is in danger of becoming a gigantic machine for the distribution of shillings and only secondarily a beneficent medical service. I suggest that it is necessary and that it is time that these two aspects of the scheme should be separated." The insurance scheme was intended to make provision for medical attention for all manual workers and the less highly paid nonmanual workers but, owing to unemployment and the consequent failure of the necessary contributions from employer and employed, a steadily increasing number of workers is passing out of the scheme. "Must we not be concerned whether national health insurance is not beginning to fail in its national purpose?" he asked. "I suggest that when growing out of the national health insurance scheme there is developed a general medical service for the nation, it will be essential, and by no means difficult, to provide for the inclusion of those who are no longer able to make any individual contribution."

In previous letters the demand by socialists for "a general medical service" for all, which would be free and include every form of medical treatment, private, special and hospital, has been described. There was great danger of complete socialization of the profession when the socialist government held office. But Sir Henry Brackenbury evidently refers to the scheme brought forward by the British Medical Association, which did preserve some features of private practice and was suggested in order to avoid something worse. The position was discussed in THE JOURNAL, April 8, page 1120. The great defect of the national health insurance act is that it is socialistic and therefore manifests the viciousness inherent in all socialism. The selfishness of human nature is the rock on which the finance of all socialistic schemes breaks. There is no efficient check on the unemployed, who by means of exaggerating trivial complaints can convert insurance benefit into a dole. Sometime ago the ministry of health had to complain that the finances of the insurance system were endangered. Even without embarking on "the general medical service" it is probable that this country, the prosperity of which has been seriously impaired by overtaxation for socialistic purposes, will have to find more money for medical socialism. Similarly to the abuse of health insurance, but to a much more serious extent, insurance against unemployment has largely become a dole, which is burdening struggling industries and so producing more unemployment—the vicous circle of socialism.

Payment for Treatment of Accident Cases

In the house of lords, Lord Moynihan moved the second reading of the road traffic emergency treatment bill. He said that the physicians who rendered first aid in automobile accidents received in a large number of cases neither acknowledgment of their services nor payment. The cost to them of rendering this treatment was considerable. He hoped that it was not necessary to remind the house of lords of the immense amount of gratuitous service rendered by physicians in this country. About 60 per cent of the work he had done during his own professional life had been unrewarded, and he was in no way exceptional in that. The medical profession was unanimous as to the injustice done to physicians who rendered emergency treatment. It was estimated that there were 35,000 cases of emergency treatment given in the outpatient departments of hospitals during the year at a cost of $60,000. Not a cent of that sum was returned to the hospitals. The bill proposed that the maximum fee payable for treatment should be $15. There were 2,800,000 automobile licenses issued in the country today and if 50 cents was added either to the premium charged by the insurance companies or to the price of the driver's license a sum more than sufficient, even including administrative expenses, would be available for the payments he was asking. The objection to payment of the physician and the hospital from funds so derived could be due only to prejudice, and prejudice here, as so often in other directions, was only the emotional reaction of ignorance to truth.

A large number of lords supported the measure. The bill was read a second time. The Earl of Plymouth then moved that it be referred to the same select committee to which the road accidents compensation bill already stood referred and that Lord Moynihan be added to the committee. The motion was agreed to.

Population of England About to Decline

The momentous fact that after extraordinary expansion in the past century the population of England is rapidly approaching a maximum and then an inevitable decline has attracted little notice. The fact that an increase is still going on shuts people's eyes to the fact that the present birth rate is insufficient to maintain the present population in future years. At the congress of the Royal Sanitary Institute, Prof. A. M. Carr-Saunders, a statistician, pointed out that the population of this country will cease to increase in 1940, and possibly before then, and will subsequently decline. He said that since the Domesday survey, at the end of the eleventh century, estimates for every succeeding century showed increases interrupted only by temporary catastrophes. It can be proved that the death rate will presently exceed the birth rate, and that the population will begin to decrease without any further decline in the fertility of married women—that is to say, in the size of the family. There is no longer "a replacement birth rate." The number of children born within the last five years, who in twenty years should form the 20-25 years age group, does not equal the number now in that group. Moreover, some of them will die before reaching the age of 20. The important point is that the population will cease to increase and will then decline, even if there is no further decrease in the size of the family. But the size of the family decreases every year. If emigration were again to attain its pre-1929 level, a decline would set in before 1940. Emigration on this level from 1929 to 1940 would mean a drop of population by a million at the end of that period. Professor Carr-Saunders complained that there is a complete failure to appreciate the situation. He has seen plans which visualize a population during the next half century arrived at by projecting the continuance of the growth of the last fifty years. In one case a large expenditure has been incurred to supply water for a population that will never exist.

Blood Transfusion in London

At the annual congress of the Royal Institute of Public Health a discussion took place on blood transfusion. In London about 400 members are newly enrolled annually in the Red Cross Transfusion Service and 250 are lost, of which 80 per cent are due to pressure by relatives, colleagues and employers. By extolling the donor as a hero, the press did the service much

harm. Mr. Geoffrey Keynes said that the discovery that sodium citrate was an anticoagulant and nontoxic led to the adoption of transfusion as a common therapeutic measure. It was still the method of choice after twenty years' use. Although the citrate was balmed for rigors, it was admitted that some patients had them no matter what method of transfusion was used. Rigors might be minimized by not allowing the blood to fall below body temperature and by injecting slowly; it should take half an hour to inject 600 cc. The blood group of every donor should be determined every year or two to make certain that it did not alter. The direct test should be made between the donor's blood and the patient's serum wherever practicable. Universal donors should not be called on indiscriminately for patients of all groups, or the supply of them would be exhausted. Except in great urgency, hospitals or individuals using the service should group the blood of the patient before asking for the donor.

Dr. H. F. Brewer had found males and females between the ages of 18 and 65 acceptable as donors. He regarded any old tuberculous disorder as a contraindication. The hemoglobin of a city dweller should not be below 94 per cent. A blood Wassermann test should be made as a routine, and malaria should be excluded. Protein-sensitive persons, such as those subject to asthma, hay fever or urticaria, were not suitable. Donation by a menstruating woman was not injurious, provided the period was normal. The minimum safe interval between donations of an average quantity of blood (from 400 to 700 cc.) appeared to be three months for men and four months for women. Donors should not resume the upright position for at least an hour after service. Any lag in the recovery of the hemoglobin figure, which usually took from seven to fourteen days, was best treated by administration of iron and occasionally by addition of liver and kidney to the diet.

Condition of the Masses in Great Britain

In the discussion at the International Labor Conference, held at Geneva, on the proposal for a forty-hour week in industry Sir James Lithgow (representative of the employers of Great Britain) gave some remarkable facts on the condition of the masses in Great Britain, in spite of the prolonged industrial depression. He knew from personal contact with public officials, physicians and other social workers that, tragic as was the moral aspect of unemployment, none of the unemployed were in a state even bordering on actual want. An unemployed worker of average family responsibilities had today at least as much purchasing power as had the unskilled worker in full employment twenty years ago. Put otherwise, he was receiving today as much money as the unskilled worker in full employment in other countries who was his industrial competitor. Sir James Lithgow did not mention that this was possible only because of taxation so severe as to be unprecedented in this country and never known in any country, or that taxation had now reached and even passed its limit, the well-to-do being so taxed that they are gradually disappearing and, what is worse, the capital of the country being encroached on.

The British Medical Association and Ship Surgeons

The Medico-Political Committee of the British Medical Association has had the interests of ship surgeons under consideration since last October, when a subcommittee was appointed to go into the matter. It has now presented its report, which shows that the rates of pay for surgeons with the smaller companies varies from $90 to $110 a month, the pay ceasing on completion of the voyage. The surgeons are permitted private practice among the passengers and are allowed to charge fees on a prescribed scale. On one important line, passengers pay $1.25 per visit, and the largest amount chargeable to a passenger during a voyage, save in exceptional cases, is $75. Representations have been made to the subcommittee that the pay is unduly low, but regard has to be paid to the facts that shipping is depressed and that the companies have no difficulty in securing surgeons, some of whom engage for reasons of health or for change of scene. It is therefore considered that this is not a propitious time to make representations as to the rate of pay. Another matter considered is that the captain has power to require the surgeon to submit his private accounts before presenting them to patients. It had been contended that this was undignified. But it has to be recognized that the captain is in full legal control of all matters connected with the ship while at sea. Although the subcommittee agreed that the practice was undesirable, no specific example of hardship had been brought to its notice. It was therefore recommended that no action be taken on this matter at present. It was agreed that the possibility should be explored of securing the addition of a representative of ship surgeons to the National Maritime Board, a statutory body which regulates the pay and conditions of service of those afloat. Heretofore all grades of shipping employees except ship surgeons have been represented on it.

PARIS

(From Our Regular Correspondent)

May 31, 1933.

The Economic Crisis and Physicians

The economic crisis is resting heavily, throughout France, on the medical profession. The unemployment aid given to workmen is not applicable to members of the liberal professions (physicians, lawyers, artists), their fate, in the eyes of a government impregnated with socialism, being regarded as much less important than that of manual workers. As a result, misery and want have entered the homes of many physicians, especially those who have children. The sanatoriums, which, up to 1931, were filled with patients, are half empty. The economic crisis, as affecting the physicians, is due to many causes. First there is an excess of physicians in France, as in all other civilized countries. To this may be added the effects of demagogic laws, which, in the name of a philanthropy for which the public shows its gratitude only toward the deputies who voted for them, bear heavily on the physicians by placing the medical care of an increasing number of inhabitants in charge of the state, which grants a ridiculously low fee to the physicians who treat them. Finally there is strong competition from the foreign physicians practicing in France, with the result that the country can no longer assure French physicians a respectable living. In spite of the laws, France is still the country in which a foreign physician can most easily establish himself by defying the regulations. However, the minister of public health has decided to undertake a revision of the diplomas of dentists and of doctors of medicine, which must be deposited at the prefecture of each department by their holders in order to acquire the right to practice. Despite the register containing the names of those authorized to practice, there are a great many irregularities. Many irregular diplomas have been registered by incompetent employees. Many foreign physicians establish themselves by merely placing a physician's sign on their door without offering to deposit their diploma, which would no doubt not be accepted, and a long time elapses before such a situation is revealed, in spite of the vigilance of the medical syndicates. Hence a ministerial decree has announced that a revision of all registrations of diplomas is to be made. Only the physicians who hold a diploma of a French faculty of medicine are relieved of this duty. The holders of foreign diplomas must present themselves at the prefecture of the department in which they practice and exhibit their diploma. Later the owners of houses in which any physician is practicing must supply the prefecture with a list of the names. Physicians who are practicing medicine under illegal conditions can be expelled from the country.

The question has been recently brought sharply to the fore as a result of measures adopted in Germany against the Jews, most of those who had to leave their country having taken refuge in France. Among these immigrants are many eminent Jewish physicians. A professorial chair has been created at the Collège de France for the eminent mathematician Einstein, but it is impossible for France to repeat too often this generous gesture. It is impossible to accord to Jewish physicians from Germany the right to practice in France, for that right is denied in Germany to the holders of a French diploma. The medical journals contain many advertisements of Jewish physicians from Germany offering their services as assistants in the laboratories. They are not meeting with success. The situation of these unfortunate men is pitiable. Some of them are accepting work as low-salaried employees, while their wives are, in some instances, serving as domestics.

Inconveniences Due to Electrotherapeutic Apparatus

The installation of an electrotherapeutic cabinet in a building in which there are several renters, as often happens in large cities, may expose the practitioner to formal complaints lodged against him in the courts, by his neighbors. In several instances, neighbors have contended that rays emanating from radiologic apparatus passed through the walls and caused various disorders. The courts ordered inquiries made and then required the radiologists to enclose their cabinets in a booth with thick walls covered with sheets of lead. Now the devotees of wireless telephony complain that high frequency apparatus emits waves that disturb their radiotelephonic transmissions. At Amiens, a dealer in apparatus used in wireless telegraphy brought suit against a physician, alleging that, in giving diathermic treatments, he disturbed the wireless apparatus that he displayed to customers. Similar observations have been made about the electric plants located in the center of cities. These plants, however, are too important to close down to suit the pleasure of listeners-in on the radio. Greater severity, however, is being shown, as usual, toward the physicians, and the court of Amiens ordered the electrotherapeutist to take such action as was necessary to prevent the business of the dealer in wireless apparatus from being disturbed. The physician found it next to impossible to prevent such disturbance, so he was ordered to change his consultation hours.

The Eighty-Second Birthday of Professor d'Arsonval

Ceremonies were held in Paris, May 27-28, to celebrate the eighty-second birthday of Professor d'Arsonval. A reception was organized at the Hôtel-de-Ville by the municipal council, and a special session was held in the Great Hall of the Sorbonne, which was attended by the president of the republic and government officials. Addresses were delivered by delegates of the learned societies to which Professor d'Arsonval belongs or which were founded in application of his discoveries. Among the delegates was Professor Jellinek, who had come from Vienna for this purpose. The minister of public instruction presented the scientist with a large medal and in a charming speech traced his career of discoveries in electrophysics and biophysics, noting the industrial applications. The whole world is profiting today from the discoveries of d'Arsonval. The use of high frequency currents is often termed d'arsonvalization. Professor d'Arsonval responded to the eulogies with many witty allusions, in which he gave reminiscences of his childhood days. He said that he owed to Claude Bernard whatever measure of success he had attained and that the title of which he was most proud was that of preparator in the laboratory of the great physiologist. He praised a number of his pupils who had, he stated, outdistanced their master. He pointed to Mr. Georges Claude, who sat near him, and said "This man was my greatest discovery."

ITALY

(From Our Regular Correspondent)

April 30, 1933.

The National Council of Research

At its recent sessions, the Consiglio nazionale delle ricerche, presided over by Guglielmo Marconi, devoted itself to planning a program of research in biology, medicine and nutrition. It was decided that the committee on biology should organize a new biologic station for applied genetics, experimental embryology and the physiology of persons subjected to high pressures. The research will be distributed among various universities.

A special commission is dealing with the problems of alimentation. Investigations are under way to promote the knowledge of the chemical composition, the caloric value and the vitamin value of the foods produced in Italy. The basal metabolism of Italians according to age and sex is being studied. Research is being carried on to establish the alimentary requirements of children and adults, pregnant and nursing women, laborers and soldiers.

The committee on medicine will suspend for a year the epidemiologic studies on typhoid, since the practical application of the results secured are still experimental. The research on rheumatism will be developed, for this is an important problem.

The studies completed on ancylostomiasis have established, in addition to the existence of healthy carriers of Ancylostoma, also the possibility that the larvae may penetrate vegetable tissues and make certain vegetables vehicles of infection.

The Olympic committee will continue the research on athletes.

The program of the committee on medicine will include two new subjects; namely, an examination of the relation between bone changes and the parathyroids, and the research on the etiology of malaria, in which recent studies have postulated the existence of a filtrable form of specific parasites.

Bone Transplant in Vertebral Fractures

Fractures of the dorsolumbar and the lumbar vertebrae, with crushing of the vertebral bodies, often cause rigidity, pain and gibbosity. To prevent these sequels, Professor Pieri of Belluno has advised, since 1917, an operation consisting in the application of a bone transplant after the Albee method, as in the treatment of tuberculous spondylitis. In the last eight years, Professor Pieri has operated in eight cases of fracture of one or more vertebral bodies (from the twelfth dorsal to the third lumbar) with deformations. The operation was performed within not more than fifty days, at the most, of the trauma. The bone transplant was attached to the arches of the two healthy vertebrae above and of the two healthy vertebrae below the area of the fracture. Immobilization of the trunk in a plaster cast, for one month, followed. Then, for two months, an ordinary Sayre plaster corset was applied.

Dr. Di Prampero announced to the Società medico-chirurgica of Belluno the satisfactory results obtained in all the cases thus treated and presented two patients on whom he had operated, one operation dating back eight years.

Academy of Sciences of Apulia

The Accademia Pugliese di Scienze met recently at Bari under the chairmanship of Professor Gaifami of the University of Bari. Amoia announced the unusual finding of Trichomonas vaginalis in the male urethra. Only four such observations are reported in the literature. The speaker considered it premature to state whether Trichomonas, which is regarded by many as pathogenic in its more common localization (the vagina), is likewise pathogenic in the urethra—male or female.

Attimonelli discussed the duration of immunity in persons who have had smallpox. Subjecting to smallpox vaccination ninety-four persons who contracted smallpox during the epi-

demic of 1919, he secured in 20 per cent of them the formation of a pustule, and in 16 per cent a papulovesicular reaction. In a few others he noted the formation of a small papule. The speaker raised the question as to whether all the persons who presented the positive vaccinal reaction had lost their immunity to smallpox, or whether the vaccinal reaction is to be regarded as an expression of cutaneous allergy.

The Riberi Prize

The Accademia di medicina of Turin has announced the conditions of competition for the fifteenth award of the Riberi prize, which amounts to 20,000 lire ($1,150). Scientific work submitted must mark a distinct advance in medical knowledge. Both printed and typewritten works in Italian, Latin, French, English or German will be accepted. Printed works must have been published since 1927. If the prize is awarded to a typewritten work, it must be printed by the author within two years. The works must be sent to the Accademia di medicina of Turin not later than Dec. 31, 1934.

BUENOS AIRES

(From Our Regular Correspondent)

May 28, 1933.

Malaria in Cordoba

The health authorities of Cordoba recently observed about 500 cases of malaria in the rural districts of Rio Primero in Cordoba. They are conducting an antimalarial campaign, including an investigation of the possible endemicity of malaria, and various preventive measures.

High Mountain Climbing

In an editorial in THE JOURNAL, Dec. 24, 1932, page 2187, mention was made of a telegram from Berlin to the New York *Times* concerning the climbing of Mount Aconcagua, situated in the province of Mendoza in Argentina at 7,010 meters, by a German expeditionary group. Several previous attempts to climb Aconcagua were successful. Its top was reached by M. Zurbriggen in 1897, by Stuart Vines and Lanti in 1897, by R. Helbling in 1906, by F. Reichert in 1906 and by Macdonald, Ryan and Cochrane in 1925. The top of Tupungato at 6,650 meters was reached by Stuart Vines and Zurbriggen in 1897 and by Reichert in 1912. Dr. Reichert of the University of Buenos Aires has climbed several mountains in Argentina reaching altitudes of more than 5,000 meters. For his book, "La Exploracion de la Alta Cordillera de Mendoza," published in 1930, Dr. Reichert was awarded the second National Prize of Sciences.

The National Congress of Surgery

The fifth National Congress of Surgery will meet at Buenos Aires next October under the presidency of Dr. Enrique Finochietto. The subjects to be discussed are treatment of acute intestinal obstruction, by Drs. Delfor del Valle of Buenos Aires, and D. Pratt of Montevideo; treatment of fractures of the elbow, by Drs. N. Tagliavache of Buenos Aires, and L. Rezende Puech of São Paulo, and surgery in diabetes, by Dr. Rodriguez Villegas. The committee on organization has its headquarters in the offices of the Asociación Médica Argentina, Santa Fé 1171, Buenos Aires.

Protests Against Pay Clinics

The hospitals attract people more and more and the outpatient departments, attended by famous specialists with numerous assistants, are frequented by a large number of patients. As this service is gratuitous, the poor and even the rich have come to use it. Physicians complain, with reason, that this system is wrong. They are ready to give gratuitous service to those who cannot pay (only chiefs of service receive a small salary) but they feel that free service should not be extended to persons of means. Hospitals are based on the principle of charity to those who come without verification of their nationality or residence, or whether or not they pay taxes. This system has bad consequences: 1. It obliges physicians to assist gratuitously persons of means. 2. It competes with the private practitioners. 3. The municipal budget is charged with assistance to foreigners. 4. The public becomes accustomed to the maintenance of medical services as an obligatory governmental function. 5. The municipal budgets are insufficient to cover the expenses. Many physicians pay the expenses of their wards out of their own pockets in amounts varying between 300 and 2,000 pesos a month.

The clinical hospital of the university has established a scale of fees. Poor patients, whose cases are required for teaching, may be assisted gratuitously, but the others have to pay for each outpatient consultation, for every day of assistance and for operations, according to a scale that takes into account their salary, their civil status and the number of their children. This tariff has produced about 20,000 pesos a month, 70 per cent of which was turned over to the hospital. Unfortunately, the university has decided that 80 per cent of the fees must be given to it. This makes it certain that the wards will be filled with patients who do not pay and that donations will again be solicited as was done until last year.

The system of fees has worked satisfactorily for several years in the hospitals depending on the associated charities, supported by the national government. The municipal council proposed to establish a scale of fees for the nonpoor who attend municipal hospitals. Unfortunately the socialist majority objected, saying that it was wrong to demand proofs of poverty and that medical service should be gratuitous and directed by the government.

Undoubtedly the majority of the population prefers to be attended to by a physician of its own choice, who will offer more leisurely and more individual attention. As long as people prefer better assistance, the medical profession does not run the danger of seeing itself transformed into a governmental bureaucracy or a bureaucracy of insurance companies and mutual aid societies, although the latter are increasing in importance at the cost of the physicians, of whom there are already about 8,000 in the country for the 11,500,000 inhabitants, and 600 graduate every year.

Committee to Study the Climate and Mineral Waters of Argentina

The house of representatives passed a bill for the appointment of a national committee to study and report on the therapeutic properties of the mineral springs and climatic resorts of Argentina. The members of the committee are Drs. M. Sussini, B. A. Houssay, E. Herrero Ducloux, M. Castillo, M. Brandam and H. Corti, and J. Galmarini.

Recognition of Foreign Diplomas

According to the law, physicians holding diplomas from foreign universities cannot practice medicine in Argentina. According to the terms of a treaty, the validity of diplomas from Uruguay, Paraguay and Bolivia is recognized, but at various times the government has been requested to abrogate this treaty. Foreign physicians must have their diploma validated, paying 4,000 pesos, and pass an examination on thirty-eight subjects. Argentine physicians graduated abroad have to take only examinations at medical, surgical and obstetric clinics. There is a law that has been objected to. According to this law the government may recognize the diploma and the right to practice of foreigners under contract with the national authorities. It has happened that foreigners under contract to teach pathologic anatomy, bacteriology, embryology, physical chemistry and so on have invoked this right on the termination of their contract and practice medicine; this privilege has even been given to a physician who had broken his con-

tract. A curious case is the recent one of Dr. Schlanger, an Austrian radiologist, who was authorized to practice because a professor from La Plata made him a demonstrator and because Dr. Finochietto, a surgeon, employed him as radiologist. Such cases have given rise to many protests, which will result in a request to rescind the law.

New Professors

Dr. Nicanor Palacios Costa has been nominated professor of obstetrics in the School of Midwives. At the Faculty of Medicine of La Plata, Dr. A. Errecart has been nominated titular professor of otorhinolaryngology, and Dr. Orestes Adorni of medical pathology. At the Faculty of Medicine of Buenos Aires, Dr. A. Caeiro has been nominated assistant professor of operative medicine, Dr. O. Adorni of medical pathology, Dr. O. Ivanissevich at the surgical clinic, and Dr. A. D. Marenzi of biologic chemistry; the latter has worked with Folin in Boston.

Prizes

The first national prize of sciences for 1930 (30,000 pesos) has been given to Drs. Solé and Piñero Sorondo for their work on gastric ulcer. The third prize (10,000 pesos) has been divided between Dr. A. Battro for his study on coronary occlusion and Dr. A. Salaber for his thesis on the embryology of the female genital apparatus. The prize for the best work in medicine during the years 1931-1932 was given to Dr. Diez for his work on surgery of the sympathetic system.

Personals

Dr. Pedro Rojas, who was given a scholarship by the Rockefeller Foundation to study in Brussels in 1931, has been appointed professor of History at the Faculty of Medicine of Buenos Aires.

Drs. F. R. Ruíz, C. Weskamp and P. Ferrazzini have been appointed professors of pathologic anatomy, ophthalmology and obstetrics, respectively, at the Faculty of Medicine of Rosario.

Drs. J. B. Señorans, Buenos Aires, Pierre Janet, Paris, and H. Rossello and E. Blanco Acevedo, Montevideo, have been appointed national and foreign honorary academicians, respectively, of the Academy of Medicine of Buenos Aires. Drs. H. García Lagos and P. Barcia, Montevideo, have been appointed foreign correspondents of the same academy.

JAPAN

(From Our Regular Correspondent)

May 15, 1933.

The Overproduction of Medical Graduates

Nineteen medical universities and eleven medical colleges have had 3,143 medical graduates this year. The deaths of physicians last year numbered 933, and those who gave up practice, 23. The real actual increase of physicans during the twelve months was 2,187, which is a record increase of physicians in this country. It is due to the sudden increase in the number of medical schools in 1928 as the after-effects of prosperous times. The first graduates came from the new schools this April. There was 1 physician to 1,297 people in 1930. The average annual increase of population for the five years following 1925 was 884,052, while the average increase of physicians was 891 for those years; that is, there was 1 physician to 1,078 of population. This year the proportion was greatly changed. If this increase in graduates continues, in ten years there will be 1 physician to every 500 people. Far sighted men are earnestly emphasizing the need of emigration to the continent, especially to the new republic of Manchukuo.

Periodic Medical Examinations

The relationship of physicians and the family has gradually changed. The physician formerly was truly a family physician. People ran to his door to consult about trouble, both physical and mental. He was an adviser to the family. This custom is now seldom seen in this country. Dr. K. Miyajima, a well known medical expert, asks in the *Medical News,* What is the best way to regain the old confidence of the family in the physician? He says the only way is to establish periodic medical examination of all members of the family. Some intelligent people already feel the necessity of it, though the majority have to be awakened to this need. The good results of such an examination on the part of the patient are obvious. As for the physician, this examination will benefit him greatly, but it requires deliberate observation and attention in executing the examination. The examinee may be in good health, but the observations may be useful from the standpoint of statistical research. The examinations should start in infancy, if possible, or be made during the developing period twice a year. The physician should also learn the habits, pleasures and occupation of the examinee. Such knowledge of the patient is certain to establish the confidence of the sick person in the physician. He also says that the fee should be sufficient, for the examination requires much time, equipment and hard work.

"Uncaging" the Licensed Prostitute

The licensed prostitute in Japan has been confined to restricted districts since 1900, being prohibited from leaving those districts even for a walk without permission from the police station in charge. The police were not generous with their permits, unless unavoidable reasons were proved. This state of "caged" living has long been a source of criticism, and it is to be abolished on the 21st of this month. Licensed prostitutes will then be free to leave the restricted districts whenever they wish without permission from the police if only the brothel host consents. There is, of course, some apprehension concerning their immoral practice outside their quarters, with some fear of difficulty in preventing venereal disease. While this "uncaging" may tend to encourage an increase in the number of prostitutes, from the point of view of recognizing individual liberty it has received the approval of the public. The Christian Women Purification Crusade is reported to have renewed its plans to abolish the brothels in order to release about 22,000 prostitutes from slavery, asserting that there will be no increase in venereal disease.

The International Red Cross Conference

It has been decided to hold the International Red Cross Conference in October, 1934, in Tokyo. It is reported that sixty-four countries and fifty-eight Red Cross societies will send delegates.

Increase in Dentists Attached to Public Schools

The school dental law was promulgated in 1931, and the school dental service regulations were announced by the education office in 1932. Complete control all over the country in this line of hygiene has been made. In spite of the business depression, the employment of school dentists has rapidly increased. According to an investigation in April, 3,619 primary schools had employed 2,788 dentists. In the middle grade schools, 719 schools had employed 690 dentists. Last year 126,699 yen was spent in the primary schools and 14,965 yen in the middle grade schools for this purpose.

Health Insurance

Along with government health insurance there have been formed two private health insurance schemes, one between a city medical association and some large factories, the other between a prefectural medical association and some factories in one of the chief manufacturing centers, for the first time. According to the agreement, all members of the associations are to be panel doctors, and all the operatives in factories and their families have free choice of physicians. The fee will be paid by the factory proprietors in advance for the patients, who are required to return the sum needed for the treatment out of

their wages little by little. The spreading tendency of sick benefit associations shows the change in medical practice in this country. But in these two cases, medical treatment is neither to be limited treatment nor treatment at cost but is to be treatment as is usual with ordinary patients.

Another sick benefit association, or health insurance, which claims a low fee and treatment at cost, has appeared in not a few towns and farming villages and is supported by the industrial guild. This guild is a powerful and widespread industrial organization with its own hospitals and clinics.

A Hereditary Eye Disease

At the meeting of the Japan Ophthalmologic Society recently in Tokyo, Prof. Dr. B. Hata, of the Okayama Medical University reported that since 1928 he had examined about 25,300 cases of eye disease, among which he found 311 cases of malignant pigment degeneration of the retina, a kind of cataract that begins at adolescence with night blindness, and ends in blindness in a score or so of years. Among the 311 there were 161 blind. Going back to their ancestors, he investigated the relation of this disease to marriage and heredity. Fifty-four cases were found to have occurred among consanguineous marriages. Of these fifty-four patients, forty-four had parents who were related by blood; 167 had ancestors who had suffered from the same disease. No such transmission was found in forty-four cases. He concluded from this research that the disease was transmitted by intermarriage or was hereditary.

Increase in Crime and Suicides

A sharp increase in the number of crimes committed in this country is indicated by official figures obtained from the bureau of police. In all, 1,181,705 cases of violation of law were recorded by the police in 1931, with an annual increase of about 120,000 cases during the preceding years. There were 769 cases of manslaughter in 1930 and 952 in 1932. Of offenses in 1931 the most conspicuous increases were in cases of theft and false pretense. In 1929, 2,412 robberies in which either threats or weapons played a part were committed, and in 1930 a total of 2,282. In the following year, however, a slight decrease was noted, the figure dropping to 2,198. The number of minor thefts committed in 1930 totaled 540,310, and in the following year increased to 584,542. Illegal acts committed by sexual perverts in 1930 numbered 3,039; in 1931 this figure increased to 3,409. Violation of the laws on gambling in 1931 totaled 26,964, with an increase of approximately 3,000 cases compared with 1930. Figures pertaining to suicides and attempted suicides in the Tokyo metropolitan police area during 1932 were 2,357, which shows an increase of 507 compared with the previous year. In 1932, 1,401 men and 965 women committed or attempted suicide; in 1931, 1,160 men and 690 women. In 1932, poison was used by 516 men and 476 women; drowning, by 231 men and 98 women; hanging, by 271 men and 94 women; jumping before trains, by 226 men and 50 women.

The Society for the Encouragement of Science

A society for encouraging the promotion of all branches of science was formally organized this spring. The last session of the diet approved the government's annual subsidy of 750,000 yen. Besides, the emperor's subsidy was 1,500,000 yen. The total sum to be spent annually to encourage scientific research will amount to 5,000,000 yen. The honorary president of the society is Prince Chichibu, the younger brother of the emperor; the president is Viscount Admiral Saito, the prime minister, and the chief director is Dr. Joji Sakurai, D.Sc., president of the Imperial Academy. From medical circles, six councilors were appointed, including Dr. T. Kitajima, head of the Japan Medical Association. The society will begin work this autumn; its selection is said to be the result of careful deliberation by 110 councilors.

Marriages

JOSEPH GARBER COCKE, Birmingham, Ala., to Miss Violet D. Hoile at Columbus, Ga., June 5.

ERNEST HENRY WARNOCK to Miss Mary Frances Ogle, both of Indianapolis, May 20.

WILLIAM RIVES WILSON to Miss Elleda Bristol, both of Ansonia, Conn., May 20.

HERMAN B. KAUFMAN to Miss Ida Snewind, both of Youngstown, Ohio, June 11.

CLIFFORD L. CARTER to Miss Astrid Nygren, both of Chicago, June 7.

Deaths

George Eli Armstrong, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1877; emeritus professor of surgery at his alma mater; member and past president of the American Surgical Association; fellow and past president of the American College of Surgeons; past president of the Canadian Medical Association; served during the World War; aged 78; consulting surgeon to the Verdun Protestant Hospital, Montreal General Hospital and the Royal Victoria Hospital, where he died, May 25.

George Francis Suker ⊕ Chicago; University of Michigan Medical School, Ann Arbor, 1892; Chairman of the Section on Ophthalmology, American Medical Association, 1930-1931; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; on the staffs of the Post-Graduate Hospital, Cook County Hospital, Grant Hospital and the Edward Hines, Jr., Hospital, Hines, Ill.; aged 63; died, July 2, of coronary sclerosis.

Gordon Moore Gibson ⊕ Brooklyn; McGill University Faculty of Medicine, Montreal, Que., Canada, 1904; associate professor of obstetrics and gynecology, Long Island College Hospital; fellow of the American College of Surgeons; on the staffs of St. Peter's Hospital and the Huntington (N. Y.) Hospital; aged 51; died suddenly, June 17, of coronary thrombosis and arteriosclerosis.

Leo Brooks Rosenthal ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1909; adjunct professor of internal medicine, New York Polyclinic Medical School and Hospital; aged 48; on the staffs of the People's Hospital and the Sydenham Hospital, where he died, June 18, of injuries received when he was struck by an automobile.

Faxton Eugene Gardner ⊕ Fairlawn, N. J.; Université de Paris Faculté de médecine, 1904; clinical professor of dermatology and syphilology, New York Polyclinic Medical School and Hospital; member of the Medical Society of the State of New York; served during the World War; aged 55; died, June 21, in the Peekskill (N. Y.) Hospital.

Ernest Hamilton White, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1901; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; professor of otolaryngology at his alma mater; on the staff of the Royal Victoria Hospital; aged 55; died, June 15.

Archibald Clair Adams, Lima, Ohio; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1900; member of the Ohio State Medical Association; formerly county coroner; on the staffs of St. Rita's Hospital and the City Hospital; aged 58; died, June 15, of heart disease.

James Harry Ullrich ⊕ Baltimore; Baltimore Medical College, 1897; associate professor of gastro-enterology, University of Maryland School of Medicine and College of Physicians and Surgeons; served during the World War; aged 58; died, June 27, in the University Hospital, of suppurative pancreatitis.

Clement Biddle ⊕ Medical Inspector, Commander, U. S. Navy, retired, Philadelphia; Jefferson Medical College of Philadelphia, 1878; entered the Navy in 1878 and retired in 1908 on application after thirty years' service; served during the Spanish-American War; aged 78; died, June 5.

Ernest Sanford Jack, Melrose, Mass.; Harvard University Medical School, Boston, 1886; member of the Massachusetts Medical Society; on the staff of the Melrose Hospital; aged 72; died, May 17, of chronic nephritis, hypertension and cerebral hemorrhage.

George William Roberts, Spokane, Wash.; Medical College of Ohio, Cincinnati, 1884; member of the Washington State Medical Association; veteran of the Spanish-American War; aged 63; died, May 11, of bronchopneumonia and metastatic carcinoma.

William Cantine Gilley, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1885; member of the Medical Society of the State of New York; aged 82; died, June 21, in St. Luke's Hospital, of heart disease.

Charles Huber, New York; Columbia University College of Physicians and Surgeons, New York, 1896; member of the Medical Society of the State of New York; on the staff of the Lenox Hill Hospital; aged 60; died, June 4, of cerebral hemorrhage.

Edward H. Whitcomb, St. Paul; Columbus (Ohio) Medical College, 1884; an affiliate Fellow of the American Medical Association; formerly county coroner; aged 71; on the staff of St. Joseph's Hospital, where he died, June 8, of cerebral glioma.

Raymond Coleman Hill, Rochester, N. Y.; Syracuse University College of Medicine, 1905; member of the Medical Society of the State of New York; on the staff of the Rochester State Hospital; aged 53; died, June 5, of heart disease.

Fred W. Vance, Mannington, W. Va.; Eclectic Medical Institute, Cincinnati, 1905; member of the West Virginia State Medical Association; formerly mayor of Mannington and member of the board of education; aged 59; died, May 20.

Frederick Lamont Gates, Cambridge, Mass.; Johns Hopkins University School of Medicine, Baltimore, 1913; lecturer on general physiology, Harvard University; aged 46; died, June 18, of a skull fracture, received in an accident.

Benjamin Emmett Graham, Gurley, Ala.; University of the South Medical Department, Sewanee, Tenn., 1894; past president of the Madison County Medical Society; aged 59; died, June 22, as the result of an automobile accident.

Robert Ira Busard ⊕ Muskegon, Mich.; Northwestern University Medical School, Chicago, 1910; fellow of the American College of Surgeons; on the staff of the Hackley Hospital; aged 46; was killed, June 21, in an airplane accident.

Isaac Ward Sampsell, New York; Northwestern University Medical School, Chicago, 1900; member of the American Psychiatric Association and the Medical Society of the State of New York; aged 60; hanged himself, June 27.

Herbert William Newhall ⊕ Lynn, Mass.; Harvard University Medical School, Boston, 1884; for eight years member of the school committee; aged 75; died, June 18, of coronary thrombosis, myocarditis and arteriosclerosis.

Clarence Erroll Wilson, Boise City, Okla.; State University of Iowa College of Medicine, Iowa City, 1910; member of the Oklahoma State Medical Association; aged 46; died, June 22, of a self-inflicted bullet wound.

James Flandreau Van Fleet ⊕ New York; Fordham University School of Medicine, New York, 1918; on the staffs of the Nyack (N. Y.) Hospital and the Manhattan Eye, Ear and Throat Hospital; aged 42; died, June 5.

Robert Harold Coker, Tallassee, Ala.; University of Alabama School of Medicine, 1915; member of the Medical Association of the State of Alabama; aged 40; died, June 17, in St. Margaret's Hospital, Montgomery.

Justin Thomas Smallwood, Worthington, Minn.; University of Minnesota College of Homeopathic Medicine and Surgery, Minneapolis, 1908; member of the Minnesota State Medical Association; aged 50; died, May 24.

William Van Werden, Los Angeles; Rush Medical College, Chicago, 1885; member of the Iowa State Medical Society; aged 70; died, April 18, at the Iowa Methodist Hospital, Des Moines, of carcinoma of the liver.

Charles Edward Adams, Gastonia, N. C.; University of Maryland School of Medicine, Baltimore, 1878; member of the Medical Society of the State of North Carolina; aged 78; died, June 9, of angina pectoris.

Edward George Heyer ⊕ Nanticoke, Pa.; Medico-Chirurgical College of Philadelphia, 1910; for many years on the staff of the Nanticoke Hospital; aged 50; died, June 20, in Belmar, N. J., of endocarditis.

Charles Bryant Clark, Cedar Rapids, Iowa; State University of Iowa College of Medicine, Iowa City, 1893; member of the Iowa State Medical Society; aged 61; died, June 24, of subarachnoid hemorrhage.

John Williams Brown, Hampton, Va.; University of Virginia Department of Medicine, Charlottesville, 1899; served during the World War; aged 59; died, June 11, of poisoning, self administered.

Sydney Sumner De Beck, Franklin, Maine; University of Vermont College of Medicine, Burlington, 1887; member of the Maine Medical Association; aged 69; died, March 20, of heart disease.

Charles Edmund Carr, New York; Columbia University College of Physicians and Surgeons, New York, 1913; aged 50; died, May 17, in the Presbyterian Hospital, of pulmonary embolism.

William T. Mefford ⊕ Riverside, Ill.; Cincinnati College of Medicine and Surgery, 1874; Medical College of Ohio, Cincinnati, 1880; aged 80; died, May 17, of uremia and chronic nephritis.

George Wesley Hinkle, Harvard, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1875; member of the Iowa State Medical Society; Civil War veteran; aged 83; died, May 13.

Lewis Fish, Fitchburg, Mass.; Baltimore Medical College, 1898; member of the Massachusetts Medical Society; on the staff of the Burbank Hospital; aged 62; died, June 3, of angina pectoris.

Guy Roland Anderson ⊕ Barnesboro, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1899; formerly member and president of the school board; aged 59; died, June 17.

Luther Edgar Moore, Searcy, Ark.; Vanderbilt University School of Medicine, Nashville, Tenn., 1885; member of the Arkansas Medical Society; aged 72; died, June 4, of senility.

Albert S. Applewhite, Jackson, Miss.; Atlanta (Ga.) School of Medicine, 1908; member of the Mississippi State Medical Association; aged 63; died, June 6, of heart disease.

Silas Simeon Brown, Pittsburgh; Baltimore Medical College, 1893; aged 70; died suddenly, May 31, in a railway station at Little Falls, Minn., of cerebral hemorrhage.

Jacob S. Shoemaker ⊕ New Lothrop, Mich.; University of Michigan Medical School, Ann Arbor, 1883; aged 78; died suddenly, June 20, of heart disease, at Cynthiana, Ky.

Joseph Octave Reaume, Windsor, Ont., Canada; Michigan College of Medicine, Detroit, 1885; Faculty of Medicine of Trinity College, Toronto, 1886; aged 77; died, June 13.

James Hughes Neff, Sullivan, Ind.; Kentucky School of Medicine, Louisville, 1890; member of the Indiana State Medical Association; aged 72; died, June 22, of nephritis.

John Hamilton Charters, Detroit; Saginaw (Mich.) Valley College, 1903; member of the Michigan State Medical Society; aged 54; died suddenly, June 22, of heart disease.

John Henry Linder, Socorro, N. M.; University of Louisville (Ky.) School of Medicine, 1909; aged 48; died, June 8, of a self-inflicted bullet wound in the head.

Amos Avery, Portland, Ore.; Long Island College Hospital, Brooklyn, 1899; aged 65; died, May 29, in the Portland Sanitarium, of cerebral hemorrhage.

Harry Melick Keller ⊕ Hazleton, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1888; aged 66; died, May 27, of heart disease.

Magnus F. Stewart, Loveland, Colo.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1895; aged 62; died, April 30, of cerebral embolism.

Amelia Augenia Dranga ⊕ Pittsburgh; Woman's Medical College of Pennsylvania, Philadelphia, 1897; aged 66; died, May 27, of heart disease.

Josiah Evans Cowles, Los Angeles; University of Maryland School of Medicine, Baltimore, 1880; aged 78; died, June 14, of heart disease.

James C. Littleton, Baltimore; University of Maryland School of Medicine, Baltimore, 1883; aged 85; died, June 9, of bronchopneumonia.

Jacob E. Nyquist, Duluth, Minn.; University of Minnesota Medical School, Minneapolis, 1905; aged 59; died, May 24, of gastric carcinoma.

William Daniel Cox, Strawberry Plains, Tenn.; Tennessee Medical College, Knoxville, 1900; aged 72; died, June 21, of angina pectoris.

Howard Girard Barton, Adelphi, Ohio; Ohio Medical University, Columbus, 1893; aged 69; died, June 8, of organic heart disease.

John Robert Durrett, Nelson, Mo.; Missouri Medical College, St. Louis, 1899; aged 59; died, May 27, of cerebral hemorrhage.

Byron Stillman Cranston, New London, Ohio; Baltimore Medical College, 1893; aged 64; died, June 13, of nephritis.

George L. Cornell, Rudyard, Mich.; Detroit College of Medicine, 1890; aged 68; died, June 6, of heart disease.

Bureau of Investigation

CURRIER'S TABLETS

Another "Patent Medicine" for Stomach Ulcers

During the past three or four years the country has been flooded with "patent medicines" sold for the alleged cure of stomach ulcers, hyperacidity and general gastric distress. Possibly the economic stress through which the country has been passing, with the resultant worry and mental depression has brought about an increased incidence of so-called gastric neuroses. There seems little doubt that gastric distress is widely prevalent. Persons thus afflicted have their condition still further aggravated by the "patent medicine" advertisements, either in newspapers or over the radio, that, like all "patent medicine" advertising, attempt to develop the fear complex—to make well people think they are sick and sick people think they are dangerously sick. The belief is implanted in the minds of the sufferers that they have peptic or duodenal ulcer, and they are led to believe that the only hope of escaping the operating table is to buy the particular "patent medicine" whose advertisements they happen to read or hear.

There are numerous preparations of the stomach-ulcer-cure type on the market. One of the first to be puffed was "Pfunder's Stomach Tablets," which came from Minneapolis. It was dealt with in an article in this department of THE JOURNAL, Dec. 1, 1928, and it was there shown that the tablets were essentially a mixture of bismuth subnitrate, magnesium oxide and baking soda. Then there was "Udga," which came from the same part of the country as Pfunder's and apparently had much the same composition. This was the subject of a brief item in the "Queries and Minor Notes" Department of THE JOURNAL, Feb. 15, 1930. A "patent medicine" advertised extensively for "heartburn, acid indigestion, sour stomach and gas" and rejoicing in the descriptive name "Tums for the Tummy," was found to be a mixture of chalk and sugar flavored with peppermint. It was the subject of a short article in this department of THE JOURNAL, May 23, 1931.

Judging from the number of inquiries received by the Bureau of Investigation, it would seem that one of the most widely exploited nostrums in the stomach-ulcer class at the present time is "Currier's Tablets," put out from Los Angeles. Currier's Tablets are advertised by that new boon to the nostrum exploiter, the radio, although some newspaper space has also been used. Those who write to Currier's Tablets, Inc., Los Angeles, to ask for further information regarding the product are sent a letter printed in imitation typewriting, stating that the tablets "are not merely a temporary relief, but are intended to stimulate the stomach to normal and overcome the cause." The recipient of the advertising is also told that the tablets sell for $5 a bottle and that if at the end of fifteen days' use the patient is not satisfied that he is being benefited, he may return the balance of the tablets and the $5 will be refunded.

With the letter there comes an advertising sheet, one-half of which is devoted to the story of how Currier's Tablets were discovered; the other half is devoted mainly to testimonials. The story of the discovery is rather typical of "patent medicine" exploitation. It is to the effect that Roy G. Currier was a "tall, dejected, depressed, unhappy" man in 1911 who weighed "a mere 137 pounds" and was suffering from an "enlarged liver." Four years' "consistent treatments succeeded in reducing the liver to a normal size." But alas! "The shell of a man remains the same." His case was then diagnosed as duodenal ulcer. He took "Pounds and pounds of Baking Soda . . . Tons of Bismuth of Megnesia [*sic!*] . . . Gallons of Peppermint." Later Roy G. Currier decided to take upon himself "the responsibility of experimenting with HIS OWN life . . . HIS OWN health . . . HIS OWN STOMACH." With the aid of a "chemist friend" and "months of laboratory work," they developed the "secret compound"—Currier's Tablets. "The climax had been reached. Roy G. Currier was relieved of DUODENAL ULCERS . . . BY HIS OWN COMPOUND!!!" Thus was Currier's Tablets, Inc., formed, and the public is told that "under the protection of copyrights and patents Currier's Tablets became a byword . . . a boon . . . a human necessity in the treatment of Hyperacidity, acidosis, gastritis, indigestion and Stomach Ulcers." It was, in short, a "marvelous remedy" that has "startled the medical world."

Another piece of advertising sent out by Currier's Tablets, Inc., is a sixteen-page pamphlet entitled "Facts." Two pages are devoted to giving the public some interesting misinformation regarding the human stomach. A picture is given of what is described as the "normal empty stomach" and shows it as an open bag! Mr. Currier's advertising men should look up their high-school physiology textbooks, even if they don't do further research. Two more pages of the pamphlet are devoted to proving that Currier's Tablets will cure stomach ulcers. Two X-ray pictures are reproduced showing a stomach ulcer before Currier's Tablets were taken and the same spot after they were taken. Then follow some pages of testimonials which are signed only with initials. One testimonial from a woman in Houston, Texas, stated that Currier's Tablets had helped her husband wonderfully, that an X-ray had shown a bad obstruction "which some said was cancer." The pernicious implications that are carried by advertising of this kind are obvious. Other testimonials describe how ulcers had been cured, how stomach troubles of thirty-five years ended, how gastritis was ended, etc.

Because of the number of inquiries received regarding Currier's Tablets, the A. M. A. Chemical Laboratory was asked to analyze the product. The chemists' report follows:

LABORATORY REPORT

"An original specimen of Currier's Tablets (Currier's Tablets, Inc., 1460 North Vine Street, Los Angeles, Calif.), Price $5.00, was submitted to the A. M. A. Chemical Laboratory for examination. The label on the bottle bore the following statement:

"'Currier's Tablets—Currier's Tablets can be obtained from Currier's Tablets, Incorporated, 1460-1462 N. Vine St., Los Angeles, Calif. Price, $5.00. Contents 100 Tablets.

"'Neutralizes gastric hyperacidity. In all cases where indicated these tablets have proven highly efficient.'

"The jar contained 100 large cream-colored tablets possessing an aromatic odor resembling that of menthol. The average weight of each of 10 tablets, weighed individually, was 2.57 Gm. (approximately 40 grains) with a variation of 2.1 per cent above to 1.4 per cent below.

"Qualitative tests indicated the presence of starch, carbonates, nitrates, bismuth, magnesium, sodium, a substance resembling menthol, and acid insoluble material (talc). Calcium, mercury, antimony, potassium, chlorides, sulphates, phosphates, phenolphthalein, emodin-bearing drugs and alkaloids were not found.

"Quantitative determination yielded the following:

"Loss on drying (100° C.)	7.2 per cent
Loss over sulphuric acid	2.7 per cent
Ash	62.9 per cent
Acid insoluble material (talc)	2.0 per cent
Bismuth (Bi^{+++})	23.7 per cent
Magnesium (Mg^{++})	16.3 per cent
Sodium (Na^{+})	6.5 per cent
Carbon dioxide (CO_2)	11.8 per cent
Starch	4.9 per cent

"Based on the foregoing, it may be calculated that Currier's Tablets contain as essential ingredients:

"Bismuth Subnitrate, U. S. P.	33.4 per cent
Magnesium Oxide, U. S. P.	31.1 per cent
Sodium Bicarbonate, U. S. P.	22.7 per cent"

From the chemists' analysis, it appears that Currier's Tablets, the "secret compound" that was developed after "months of laboratory work" by Mr. Currier and his chemist friend, is essentially identical with the stock bismuth compound tablet that most of the large pharmaceutical houses sell. On the basis of the chemists' analysis, Currier's Tablets are approximately equivalent to a tablet having the following composition:

Bismuth subnitrate	13 grains
Magnesium oxide	12 grains
Sodium bicarbonate	9 grains

Nearly all large pharmaceutical houses stock a tablet composed of bismuth subnitrate 10 grains, magnesium oxide 10 grains, and sodium bicarbonate 10 grains. These sell at $1.85 a hundred. Currier's Tablets, Inc., sell for $5 a hundred.

That Currier's Tablets will give temporary relief in cases of hyperacidity is, of course, obvious—but so will a little baking soda. It is equally true that the person with a gastritis, a peptic or a duodenal ulcer, or a beginning malignancy who attempts to treat himself with Currier's Tablets or any other "patent medicine" is running serious risks—how serious every physician realizes.

WILLARD'S TABLETS

Still Another Nostrum for Stomach Ulcer

"Willard's Tablets" are sold on the mail-order plan and marketed by the Willard Tablet Company of 215 West Randolph Street, Chicago. The Willard Tablet Company seems to be a trade name used by one Oscar E. Frieder. The company was incorporated in Delaware in May, 1932, and holds a license to operate in Illinois. The Willard Tablet Company shares its quarters with several other companies in which Oscar E. Frieder or other individuals by the name of Frieder are interested. According to the Willard Tablet Company's stationery, its telephone number is Franklin 1966. At the same address and using the same telephone number are the following concerns:

First United Finance Corporation
D. & M. Finance Company
Frieder Finance Association
Silver Mirror Company
Satis-Factory Shoe Company

At this point it is worth calling attention to the fact that part of the advertising follow-up material sent out by the Willard Tablet Company is a saffron-colored sheet entitled "Certificate of Deposit". This certifies that the Willard Tablet Company has placed on deposit with the First United Finance Corporation of Chicago "a sufficient sum of money to insure the prompt full cash refund" of all requests made by persons who state that after taking the Willard Tablets for fifteen days, they are not convinced that they have received any benefit. The same certificate also states that the First United Finance Corporation has examined all the letters that are used in testimonials in the Willard Tablets advertising. The president of the First United Finance Corporation is one Edward Frieder, while Oscar E. Frieder, president of the Willard Tablet Company, operating from the same address and using the same telephone number, is also said to be interested in the First United Finance Corporation.

The Willard Tablet Company has advertised somewhat extensively over that boon to the nostrum exploiter, the radio—for it is notorious that certain radio stations will accept "patent medicine" advertising that all but the lowest grade of newspapers and magazines will reject. Those who write in to the Willard concern receive a form letter in imitation typewriting, together with the usual number of testimonials, an order blank, the so-called Certificate of Deposit, and a twelve-page leaflet entitled "Willard's Message to Stomach Sufferers." According to the "Message" Willard's Tablets are a "quick, positive relief" for the following conditions:

Stomach and duodenal ulcers	Sour stomach
Gas pains	Hyperacidity
Indigestion	Belching
Constipation	Bloating
Acid dyspepsia	Loss of appetite
Heartburn	Upset stomach from alcoholic beverages
Bad breath	

The correspondent is told in the form letter that:

"Willard's Tablets are a most wonderful preparation for the treatment of stomach ulcers and other disorders of the stomach due to or accompanied by acidity or food fermentation."

"Willard's Tablets afford the most reliable and dependable treatment for relief from stomach and duodenal ulcers, gas pains, indigestion, constipation, acid dyspepsia . . ." etc., etc.

One would get the impression from reading the Willard Tablets advertising that the tablets themselves were some remarkable formula unique in the history of therapeutics. The facts are Willard's Tablets are just another one of the antacid preparations containing, essentially, baking soda, bismuth subnitrate and magnesium oxide, a well-known combination that can be purchased in any drug store at a fraction of the price charged for the Willard nostrum.

Correspondence

"CONTINUED USE OF DIGITALIS IN PATIENTS WITH REGULAR RHYTHM"

To the Editor:—Any one who has interested himself in tracing back to original sources statements subsequently attributed to an author is struck by the frequency with which ideas are attributed to authors which are quite remote from the meaning of the statement originally made by this same author. Something of this sort will be found in the editorial in THE JOURNAL, June 3, entitled the "Continued Use of Digitalis in Patients with Regular Rhythm," in which the idea is attributed to me of having suggested that digitalis was a specific like thyroid in myxedema and liver in pernicious anemia. What I actually said was that, like these two forms of therapy, digitalis therapy, if started as suggested in my paper in THE JOURNAL, March 18, should be continued throughout life, which is entirely a different proposal from that attributed to me in the editorial referred to.

HENRY A. CHRISTIAN, M.D.,
Peter Bent Brigham Hospital,
Boston.

MORE ABOUT THE EFFECTS OF URETHRAL MEDICATION

To the Editor:—Concerning my answer to the California physician's query (THE JOURNAL, March 11, p. 766) against which Dr. Wolbarst voices a dissenting opinion (THE JOURNAL, May 13, p. 1558) I feel that his criticism deserves an answer. On the true facts rests the entire question of the prevention of posterior urethral infection. At the same time I admire Dr. Wolbarst and his work so greatly that I am loath to enter a discussion against his opinion.

His dissenting opinion is raised against my statement that, "if the anterior urethra is only partially filled with injected fluid, the tonic contraction of the cut-off muscle will prevent any of it passing into the posterior urethra, no matter how long it is retained." Against the truth of this statement he opposes an experience of over thirty years in urology. However, he has not raised a question that cannot be settled easily by any one who owns an anterior urethra, though he has placed(?) on his side "the experience of every urologist." That means that a lot of people who disagree with him probably are not urologists. Some thought they were.

Let us examine his "evidence." He says that when 2 or 3 drachms of fluid is injected into the urethra and held for some time only about 50 per cent of it is recovered, which "proves" that the rest seeped back through the cut-off muscle. Is this proof?

In his book he states that the anterior urethra is from 5½ to 6 inches long and will take a sound from 27 to 30 F. One is safer to take 27 F. as his figure for the estimation of capacity. It is interesting to note that it requires a 27 F. urethra of a length of approximately 8¼ inches to hold 3 drachms of fluid. Why attribute to seepage past a sphincter fluids that by the nature of things must be forced into the posterior urethra? One would like to say that the urethras were longer in New York than in the City of Brotherly Love, but he voids such a view by admitting that they just turn out standard sizes like the rest of our cities.

Obviously Dr. Wolbarst and my reply are not talking of the same thing. The reply spoke of a *partially* filled urethra. Any one who will make the following test will agree with its contention: Inject 5 or 6 cc. of a colored solution into the anterior urethra, have it retained for five minutes or even an hour, gently irrigate the anterior urethra to remove any of

the color, and then have the patient pass some urine in a glass. If the solution has "seeped" into the posterior urethra it will be in the first urine voided after such a test.

In some experimental work on the hydrogen ion concentration of the urethral secretion (Pelouze and Gonzales: *J. Urol.* **22**:407 [Oct.] 1929) we on far more than 100 occasions injected 5 cc. of a 5 per cent sodium chloride solution into the anterior urethra, had it retained for five minutes, and carefully measured the expelled fluid. On not a single occasion was less than 5 cc. of fluid obtained.

Regarding Dr. Wolbarst's contention that the passage of fluids from a gonorrheal anterior urethra into a noninfected posterior urethra is a salutary thing, I can only say that in Philadelphia it usually precipitates posterior infection. I have seen enough cases from New York to know that this is not peculiar to my own city or practice.

P. S. PELOUZE, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BLEEDING TIME AND COAGULATION TIME

To the Editor:—Will you kindly tell me the essential difference between the "bleeding time" and the "coagulation time," and the standard tests for each. Most textbooks are not clear on the subject.

H. E. FRUTH, M.D., Fostoria, Ohio.

ANSWER.—The essential difference between the bleeding time and the coagulation time is that in the former test the factors of cephalin of the tissue juice, mechanical action of the blood platelets, and vessel permeability play a part. Bleeding time is the time required for a small cut to stop bleeding, while coagulation time is time between the withdrawal of blood from a vessel and its formation into a clot in vitro. The standard test for the bleeding time is the method of Duke. A small cut is made in the lobe of the ear with a cataract knife or sharp scalpel. The incision should be of such size that the drop of blood when taken up on filter paper will have the diameter of from 1 to 2 cm. Successive drops are blotted up every half minute until bleeding stops. The tissue must not be traumatized during the procedure. The normal time for this method is three minutes or less, or from two to six blots. In speaking of a standard test for the coagulation time, one must bear in mind that the time varies with the method employed. In all methods using blood from a skin cut, the admixture of tissue juice is a variable factor. Such tests are more apt to be unreliable than tests in which blood is drawn from a vein. There are, however, circumstances in which venipuncture is not possible. Under these circumstances, one of the methods employing capillary blood may be used; but the variable factors must be appreciated. The most simple of this group of tests is the glass slide method. The skin is punctured with a sharp instrument so that a free flow of blood is obtained. Several drops of blood are received on a carefully cleaned slide. A needle or pin is drawn through the drop at intervals of one minute. When shreds of fibrin cling to the needle or pin and are dragged along by it, coagulation has taken place. The normal time is seven minutes or less. Evaporation must be prevented by suspending the slide on glass rods above filter paper moistened with warm water in a petri dish.

The standard test for coagulation time is the method employing venous blood. Blood is removed from a vein and delivered in a test tube. Coagulation has taken place when the tube can be inverted without displacing the clot. The time will vary with the diameter of the tube. The smaller the diameter of the tube, the more rapid is the clotting time. Either the method of Lee and White or the method of Howell is standard. In the former method, 1 cc. of venous blood is delivered into an 8 mm. diameter test tube previously rinsed with physiologic solution of sodium chloride. The normal coagulation time by this method is eight minutes or less. In the Howell method the syringe is prepared by filling it with a mixture of ether and liquid petrolatum. The mixture is forced out and air is drawn up several times, so that the ether evaporates and leaves a thin coating of oil. From 2 to 4 cc. of venous blood is delivered into a test tube with a 21 mm. bore. Normal by this method is from ten to twenty minutes. If room temperature is not between 65 to 80 F., the tube should be immersed in water with a constant temperature of 75 F.

BLOOD CULTURE OF STAPHYLOCOCCUS ALBUS

To the Editor:—What line of treatment would you suggest for a patient whose blood culture shows Staphylococcus albus? This condition has come on following a mild attack of influenza. Please omit name.

M.D., South Dakota.

ANSWER.—The severity of the infection really determines the treatment. The presence of Staphylococcus albus in a blood culture is generally considered a contamination, since Staphylococcus albus septicemia, is rather uncommon. When it does occur, it may appear in one of three forms:

1. The mild or transient type, in which few organisms reach the circulation and localize at some point of lowered resistance. A characteristic example of this type is the so-called primary acute osteomyelitis.
2. The severe or pyemic type, associated with symptoms of marked prostration and the development of multiple abscesses.
3. The terminal or fulminating type.

The treatment naturally varies with the severity of the infection. On the whole, it may be divided into systemic or supportive, surgical, and chemical treatment of the blood stream.

Systemic treatment includes such general supportive measures as absolute rest, fresh air, adequate nutrition, forced fluids and careful nursing.

Surgical treatment is frequently necessary, since the disease is one in which the primary focus or the complications consist of inflammatory or suppurative processes. It is essential that the primary focus, if evident, be removed or adequately drained whether it is a boil, a carbuncle or osteomyelitis. The development of secondary or metastatic abscesses must be watched for and these, wherever they occur, should likewise be treated surgically.

The chemical treatment of the blood stream, or what is considered the specific treatment, varies widely, since there actually is no specific treatment.

Excellent results have been obtained following repeated small blood transfusions. Whole blood in amounts of from 150 to 300 cc. is given every other or every third day, a new donor being preferably used each time. Immunized donors have been used with no especial influence on the results. Brilliant results also have been reported following the use of vaccine. Mixed vaccines have been used, but autogenous vaccine is preferred. The first dose is 100 million killed organisms given subcutaneously. Injections are repeated at intervals of from three to five days, the dose being increased each time until 1,000 million organisms are given at each injection. Treatment is continued until all evidence of the disease disappears.

In addition, the use of bacteriophage, metaphen, mercurochrome, gentian violet and nuclear extract has been recommended.

DEATH FOLLOWING ANTITYPHOID VACCINATION

To the Editor:—A physician, aged 44, in apparently good health, died about six hours after taking his third prophylactic injection of typhoid vaccine. Shortly after the injection he developed a severe chill and complained of generalized aching, especially in the back. Circumstances seem to indicate a cardiac death. About three or four years previously he refused to take his third typhoid vaccine because of the reaction from the first two. Are there any cases reported of deaths due to typhoid vaccine and, if so, what is the mechanism involved?

JOHN B. BENNETT, M.D., Falfurrias, Texas.

ANSWER.—Death following typhoid vaccination has been recorded in a few instances. Oberndorfer reported a case (Plötzlicher Tod nach Typhusschutzimpfung, *Militärärztl. Ztschr.* **47**:286, 1918) in which a man, aged 41, suffering from "nervous sleeplessness," received 0.5 cc. of typhoid vaccine at 2 o'clock in the afternoon and died after eight hours. The symptoms preceding death are not described in detail. The postmortem examination revealed an extensive syphilitic aortitis with narrowing of the coronary openings and involvement of the aortic valves; the heart muscle had small white scars and also fresh hemorrhagic infarcts. The heart was dilated and the lungs, liver and other organs passively congested. According to Oberndorfer, G. B. Gruber has reported that, in a corpulent soldier who died from eight to ten hours after typhoid vaccination, the postmortem examination showed marked hypertrophy and dilatation of the heart, with passive congestion of the organs. Oberndorfer also refers to a case described by Askanazy in a man, aged 22, who died on the fourth day after vaccination; the necropsy showed a severe interstitial myocarditis and radiating scars in the pharynx and the liver. These cases illustrate that in persons with serious heart disease typhoid vaccination, apparently at least, may hasten death.

Russell (Report of Two Deaths from Third Inoculation with Typhoid-Paratyphoid Vaccine, *Kentucky M. J.* **22**:378 [Oct.] 1924) has reported two deaths soon after the third injection of typhoid-paratyphoid vaccine. A man, aged 53, apparently in good health, received his third inoculation about 4 o'clock in the afternoon; the patient went home, feeljng stiff, achy and cold; he grew worse, became cyanotic, had a chill, and died suddenly. In this case severe reactions, which are not described, followed the first as well as the second inoculation. No cause for death was found on postmortem examination and microscopic examination of the heart muscle and the kidneys. Was this case an example of fatal anaphylactic reaction? The second case is described by Dr. J. M. Shipp in a letter which Russell quotes: "Your case was exactly like mine. My patient was in good health until I gave the third injection. He had no trouble from the first and second doses. Age 19; health good, heart sound: No previous injection of vaccine or serum before the typhoid vaccine. Third injection given at 5 p. m. At 8 p. m. I was called and found him with a temperature of 106, very rapid and bad pulse, looked as though he would die, but about 1 a. m., his temperature went down to 102. He seemed to be better until about 10 a. m., when his fever rose and he died at 1 p. m. He looked like a man that had typhoid fever three or four weeks." Was this a case of fulminantly acute infection?

No death is recorded from the typhoid vaccination of approximately 4,000,000 men mobilized in the United States during the World War (Siler, J. F., and Lambie, J. S., Jr.: The Medical Department of the United States Army in the World War **9**:15, 1928).

SIGNIFICANCE OF CASTS IN URINE OF ECZEMATOUS CHILD

To the Editor:—In making a routine urinalysis on a 3½ year old boy who is apparently perfectly healthy (he has a slight eczema of the face and a chronic watery discharge from the nose), I find numerous hyaline and a few granular casts. This specimen was voided in the middle of the morning. A first morning specimen examined four days later contained hyaline casts and probably a slightly larger proportion of granular casts. No albumin was found on either examination. Other tests were normal. What is the significance of this observation? What is the prognosis? What treatment is necessary? Please omit name. M.D., Michigan.

ANSWER.—The occurrence of appreciable numbers of both hyaline and granular casts without albuminuria seems paradoxical. Assuming that there is no error of testing or interpretation, one may content oneself partially with the possibility of hyaline cast formation without nephritis. The granular casts cannot be explained on this basis. A theoretical mechanism of their formation is suggested by the allergic constitution of the child evidenced by the facial eczema and allergic rhinitis. Children with eczema are prone to exhibit urinary abnormalities. Proceeding with theory, one may conceive of the specific allergic lesion as a local renal urticaria affecting a portion of the parenchyma with sufficient disturbance of the tubules to produce casts without giving enough exudate to yield the albumin reaction.

The prognosis should be good in the absence of other changes as reported. Further study and follow up should be made concerning urinalysis, chemical changes in the blood, and blood pressure. Etiologic investigation into the only positive changes found, namely, eczema and allergic rhinitis, should be instituted and specific treatment should be directed along these lines.

PERIODICITY OF MENSTRUAL CYCLE

To the Editor:—A tertipara, aged 30, well nourished, who married at 18, had normal labors and nursed her children, had no miscarriages, and whose menstruation was of the twenty-eight day type and regular, was never sick previous to 1931, at which time she contracted scarlet fever. For the past two years she has menstruated only every three to five months, with normal flow lasting five days. Blood examination reveals 4,500,000 erythrocytes, 5,000 leukocytes and 75 per cent hemoglobin. The urine is normal. The Wassermann reaction is negative. The patient has a gonorrheal infection apparently limited to the cervix, for which she has received treatment, including the use of the electric cautery. Smears are now negative for gonococci but a pus discharge continues from the cervix in considerable amount. She has a medium tear of the cervix, which was cauterized. Examination of the pelvic organs reveals no tenderness. The uterus is in normal position. Abnormality of the tubes is not demonstrable. What, if any, treatment will reestablish normal menstruation? Please omit name. M.D., Montana.

ANSWER.—It is extremely difficult and in most instances impossible to change the periodicity of the menstrual cycle. The local pelvic conditions described probably have little or nothing to do with the infrequent occurrence of the uterine bleedings because the latter are controlled by the pituitary gland and the ovaries. The attack of scarlet fever may be a causative factor because the change in the menses followed it. However, not only will the task of producing a monthly flow be difficult or impossible but there is really no good reason to attempt it. Women who menstruate only two to four times a year, such as the one mentioned, are usually in as good health as those who bleed every month, especially if the duration and amount of the flow are normal. If an attempt is to be made to reestablish a monthly cycle, at least two hormones may have to be administered hypodermically as an experiment over a long period. For about ten to fourteen days at a time injections of estrogenic substance or theelin will have to be given, and for the next ten to fourteen days corpus luteum extract will have to be administered. These two hormones are essential because both participate in the control of the changes that take place in the uterine endometrium during the menstrual cycle. In addition it may be necessary to give thyroid preparations by mouth, but the results with these hormones are usually not satisfactory.

ANEMIA AND THROMBOSIS

To the Editor:—I should appreciate your giving me a reference as to the possible effect of anemia on the production of an aortic thrombus. A woman, aged 47, had a hysterectomy, with hemoglobin 45 per cent. She got along well for about a week and then went into profound shock and died with multiple emboli from an aortic thrombus. The patient had been well except for excessive flowing at and between the periods. A hysterectomy was done and a pyosalpinx was removed, at which time the hemoglobin was 45 per cent. There was an uneventful course for about a week, when death followed a profound shock of about twenty-four hours' duration. At autopsy an antemorten thrombus was found to be firmly attached to the upper portion of the thoracic part of the aorta. Multiple infarcts were present in the liver, spleen and kidneys, and the left common iliac artery was plugged by a thrombus. There were no pulmonary infarcts. The lining of the aorta was smooth except for the presence of a few yellow fatty places. On section of the site of the thrombus, no change of the underlying aortic wall was made out. There was no sign of peritoneal inflammation. Please omit name. M.D., California.

ANSWER.—In a case such as described, one would naturally think of a primary thrombus originating in the veins at the site of the operation. However, unless there was a patent foramen ovale, one would expect emboli from this source to lodge in the lungs. No such observations, however, were reported in this case. Infection may be thought of as a possible or probable cause of the thrombosis. Without assuming an operative infection, there was a pyosalpinx which could easily give rise to a bacteremia. It is possible that such infection had occurred and that a thrombus formed on the wall of the aorta with superficial, slight and undiscovered anatomic evidence of its infectious origin.

There is little warrant for speaking of the direct influence of anemia in favoring thrombosis. Yet, when secondary anemia of the chlorotic type was common, thrombosis, of the veins particularly, was not especially rare. In fact, one distinction between chlorosis and pernicious anemia was, as stated in the textbooks, that thrombosis was common in chlorosis, while in pernicious anemia it was quite rare.

HEREDITY IN HARELIP AND CLEFT PALATE

To the Editor:—Oct. 26, 1930, a first child was born. The baby had a harelip and a cleft palate. The youngest brother of the father, nineteen years younger, had had a double harelip and cleft palate. Nowhere else in the family history is there any record of the deformity. Through a series of operations the child's deformity was corrected. However, the surgeon adheres to the theory that such cases are hereditary. Recently, Dr. Royal S. Copeland, in his newspaper series, announced that such troubles result from an injury to the mother when she is carrying the child. Is he correct? The mother is again pregnant. Does the second child have a good chance of escaping such a curse? Please omit name. M.D., Pennsylvania.

ANSWER.—The available statistics would suggest that there is an hereditary predisposition in something like 30 per cent of the occurring cases of congenital face clefts. From the history of many cases has arisen the impression that excessive vomiting by the mother early in pregnancy is an important feature in quite a number of them. In some others the mother has had a serious tooth complication early in pregnancy, and the impression that harelip and cleft palate occur more frequently among the poor than the well-to-do makes one feel that there might be a nutritional basis. Possibly against this it is a recorded observation that harelip and cleft palate seem to be rather common among the lion cubs born in the London zoo, but Arthur Keith has said that no prenatal handling of the mother lionesses has ever been found that seemed to influence this occurrence. According to observation, the intelligence of the average child so afflicted is equal to that of the so-called normal child; what the older observers interpreted as a basic average lower order of intelligence was a misinterpretation of faults and deficiencies dependent on lack of oppor-

tunity. For instance, unless handled properly, a child with a cleft palate is apt to be particularly deaf from the ear complications that so frequently accompany it; the resulting poor speech makes it difficult for the teacher to understand all that the child says in class, and the appearance of a poorly repaired harelip may develop a real inferiority complex. All these are things that can be taken care of, and it has been observed that the extra attention given to these children by intelligent parents and cooperative teachers often makes for finer specimens both in intelligence and in character than might have developed had they not been so afflicted. Outside of giving these children the best surgical care and special training, there is no other suggestion other than to regard it as an "act of God" which must be accepted. The occurrence of two or more children with open clefts in one family is much more rare than the single case.

DIFFERENTIAL DIAGNOSIS OF TOXIC DERMATITIS OR PSORIASIS

To the Editor:—Can urotropin (methenamine), used over a period of years, cause a skin eruption similar to psoriasis? I saw a patient today who had a nephrectomy twelve years ago for pyelonephritis. Since that time she has been taking 30 grains (2 Gm.) of urotropin daily on alternate weeks. Two months ago she developed a skin eruption, which has steadily gotten worse. This eruption is more prominent on the abdomen and the extensor surfaces of the arms and legs. The eruption starts as a small, red papule or bleb. There is intense itching and the lesions are enlarged with the scratch marks. The lesions are distinctly circumscribed, have a red base and are covered with a silver-like scale. There are no lesions on the face or nails or in the hair. Are there recorded in medical literature any cases of psoriasis-like skin lesions caused by the taking of urotropin over a period of years? Kindly omit name.

M.D., Pennsylvania.

ANSWER.—The literature on eruptions due to methenamine (hexamethylenamine) is very limited. There are several reports of dermatitis venenata due to the use of this drug in "accelerators" in the vulcanizing of rubber. One textbook (Andrews, G. C.: Diseases of the Skin, Philadelphia, W. B. Saunders Company, 1930, p. 331) says: "Hexamethylenamine may produce localized erythematous lesions or generalized morbilliform eruptions." This is the only reference to dermatitis medicamentosa due to this drug that has been found.

The description given corresponds to a real psoriasis in all but one particular, the statement that the primary lesion is a "small red papule or bleb." This may be a loose use of dermatologic terms, and there are reports of vesicles in early psoriasis; but they are rare and would argue against, rather than for, that diagnosis. Allowing the use of the term bleb to pass as an inaccuracy, the description fits an early psoriasis perfectly. There are no records of such an eruption caused by use of methenamine.

The scaly eruptions due to the arsphenamines and bismuth compounds form patches at first in some cases; but these tend to become confluent and progress to a widespread exfoliative dermatitis.

TENOSYNOVITIS OR TENDOVAGINITIS

To the Editor:—A few days ago a white man, aged 51, an accountant, came to me complaining of swelling in his wrists. About three months ago he noticed small lumps, like shot, under the skin on the back of both hands on the radial side of the wrist joint. He had had no pain in them until about three weeks ago, when he had some aching in them at the time that he had the grip. The aching then disappeared but started to reappear about two weeks ago. The aching has been gradually getting worse and he has noticed that the swellings have been getting larger. The aching runs up the arm along the radius to the midforearm and down the hand to the knuckle of the first and second fingers. For the past two days the dorsum of the hands has been swollen. There is no history of injury or occupational disease. The past history does not lend any aid in the diagnosis nor does the general physical examination, urinalysis, blood counts or Wassermann and Kahn tests. On examination the two wrists appear to be symmetrical, the tumors and swelling appearing alike in the two extremities. There is no discoloration. There are four or five small tumors below the skin at the end of the radius dorsally; they have the appearance somewhat of varicose veins but they are not compressible. They feel like cysts or ganglions, being soft and movable. I surmise that they are synovial cysts of the wrist but because they are bilateral I wondered whether this condition might not be characteristic of some particular syndrome or disease. Please inform me if such is the case and also advise me of the supposed cause and the treatment.

WILLIAM BLOUNT TURNER, M.D., Wooster, Ohio.

ANSWER.—It is probable that this patient is suffering from one of two conditions, either a tuberculous tenosynovitis of the extensor tendons and their sheaths or a stenosing tendovaginitis at the radial styloid process. The description does not state whether the tumors that are felt follow the line of the abductor pollicis longus or whether they are more irregularly distributed over the hand, and for that reason it is difficult to make an exact statement with reference to the diagnosis.

Tuberculous tenosynovitis is not uncommon at this location and may be bilateral. It has been well described by Kanavel (*Surg., Gynec. & Obst.* **37**:635 [Nov.] 1923). Treatment of the condition, as Kanavel emphasized, is careful and accurate dissection and excision of the involved tendon sheaths, with removal of the visceral as well as the parietal layers; in other words, of the synovial covering of the tendon as well as the synovial lining of the fibrous sheath. If such an operation is carefully performed and the wound accurately closed after complete excision there is every reason to hope for prompt healing and freedom from recurrence.

Stenosing tendovaginitis was first described by de Quervain. There is an excellent paper on the subject by Harry Finkelstein (*J. Bone & Joint Surg.* **12**:509 [July] 1930). In this condition a thickening and narrowing of the synovial sheath takes place, probably as the result of repeated trauma, possibly complicated by the presence of a low grade infection. The marked pain and tenderness over the abductor longus and extensor brevis pollicis are exaggerated by holding the flexed thumb under the flexed fingers and drawing the closed hand into ulnar adduction. The treatment of this condition is incision of the dorsal carpal ligament over the involved tendons. This incision opens the constricted tunnel through which the tendons glide and permits them to move back and forth without pain.

TREATMENT OF CHRONIC CONSTIPATION

To the Editor:—I have a patient, a man aged 49, who has been troubled with constipation for probably twenty years. He is in apparently excellent health otherwise. At one time he took some kind of laxative, pill or tablet, at least every other night. For the past five years, however, no drugs have been taken, fairly satisfactory bowel movements being obtained by taking daily one tablespoonful of liquid petrolatum with agar and from two to four teaspoonfuls of psyllium seed. During the past few months the bowel movements have not been so good. Occasionally the patient has a slight headache, a bad taste in the mouth, coated tongue and ribbon stools. He does not appear to be neurotic. There is no gastric disturbance, no mucus, no pain, and but little tenderness. Roentgen examination shows a spastic colitis. The patient is an office worker, though he does quite a little outdoor walking. Is it harmful to use psyllium seed over so long a period? Roughage is contraindicated in spastic colitis, yet without the roughage (or drugs) there will be no bowel movement. What treatment should I recommend? Please omit name.

M.D., Chicago.

ANSWER.—Roughage is contraindicated only when the colon is actually in a spastic condition. On the other hand, it is a preventive of "spastic colitis" when used in intervals between attacks. During an attack of spasm, a smooth diet should be used, with sufficient liquid petrolatum to render the bowel movements soft. When the attack has passed, it is desirable to add roughage to the diet—not only psyllium seed but also fruits and vegetables. The most tender forms of these are added first; and, if these are well borne, the coarser vegetables are added up to the point of tolerance, which in any case can be determined only by experience. If such a patient can eat a fairly coarse diet, he is likely to be quite free from any tendency to relapse. If the intestine is handicapped by some anatomic abnormality, it may not be possible to push the roughage beyond a certain point. Such a patient may need to be helped along by bran, psyllium or liquid petrolatum, used more or less indefinitely.

EFFECTS OF ANESTHESIA ON KAHN AND WASSERMANN TESTS

To the Editor:—How long after ether anesthesia do the Kahn and Wassermann tests on the blood give false positive reactions? Do ethylene and other gas anesthetics give false positives? If so, for how long a period? Does any other form of anesthesia give false reactions with the Kahn and Wassermann tests for syphilis? Kindly omit name.

M.D., Joliet, Ill.

ANSWER.—The concept that a person, when under anesthesia, may give false positive serologic reactions for syphilis is an old one. It is generally believed that anesthesia increases the anticomplementary properties of the blood, which in turn requires special care in the performance of the Wassermann test to avoid false positive reports. The Kahn test, not being influenced by anticomplementary properties of serum, is still less affected by anesthesia. There is no conclusive experimental evidence for the assumption that either test gives false positive reactions during anesthesia. Nevertheless, as a factor of safety, no serologic reaction obtained during anesthesia should be depended on, particularly if not supported by clinical observations. At least forty-eight hours should elapse between a general anesthetic and the drawing of blood for a serologic test.

POSSIBLE TRAUMATIC SUBDURAL HEMORRHAGE

To the Editor:—A 4 year old girl, apparently in good health up to two weeks before, was seen, March 29, complaining of frontal headache and vomiting (not projectile). The temperature was normal, the pulse rate 90. When seen, March 30, at 10 a. m., headache persisted, as did the vomiting; the temperature and the pulse rate were the same, but the child appeared more apathetic and drowsy. The face was quite flushed. The pupils were equal and regular; they reacted to light and in accommodation, but sluggishly to the former. There was a positive tache cérébrale; the knee reflex was absent; the Babinski reflex was negative. The child was yawning about every ten minutes. At 3 o'clock the same day the child had lapsed into a deep coma, from which she could not be aroused. The temperature now was 102 (rectal). The right pupil was dilated, the left was contracted, and both were fixed. There were convulsive seizures involving the right arm and leg at intervals of half an hour followed by a position of tetany (opisthotonos, fingers clinched with thumb drawn under, and jaw fixed), which was maintained for three or four minutes. Lumbar puncture was done at 6:30 p. m. and 15 cc. of clear fluid under increased pressure withdrawn. It was negative for organisms on smear and culture; there were many red blood cells; the cell count was 20. The temperature now was 105. At 7:30 p. m. the child died. On going more deeply into the history I learned that three weeks before the child had been "grazed" by a truck and knocked down in the street and carried home to her mother, who found no evidence of any injury. The child was severely reprimanded and spanked. From then on the child showed a progressive loss of interest in her dolls, her playmates and everything in general, together with an increasing nervousness. About one week later the child began to cry out in her sleep and also grind her teeth while sleeping. This hydrocephalic cry was more noticeable as the headache made its appearance. These are all the data available. What diagnosis would you suggest? Please omit name.

M.D., New Jersey.

ANSWER.—In most states this would have been a coroner's case and the coroner would probably have ordered a necropsy. Even if the child apparently was not seriously injured at the time that she was knocked down by the truck she may well have had a slowly developing subdural hematoma. It is, of course, possible that she had tuberculous meningitis and that the injury was a coincidence. However, if the cell count was only 20 it is not likely that any kind of meningitis was responsible for such severe symptoms. In the absence of a necropsy one must, of course, admit other possibilities, such as a brain tumor which had not previously caused symptoms. Since nothing is said about the eyegrounds, it is assumed that choked disk was not present. With the data given, the diagnosis favors traumatic subdural hemorrhage.

DIFFERENTIAL DIAGNOSIS BETWEEN ANTEMORTEM AND POSTMORTEM THROMBI

To the Editor:—I am exceedingly anxious to learn by what scientific laboratory tests the differential diagnosis can be made between an antemortem and a postmortem blood clot and whether or not the examination of a postmortem blood clot, made immediately after death, can be distinguished from a blood clot found in a body dead at least twelve or more hours? Can it be determined by the postmortem examination that a body had been alive at the time that it is alleged to have come to its death by falling or being thrown from a great height as against the claim that the body came to its death, several hours before, by falling or being thrown against a stone wall and suffering a compound fracture of the skull? It has been claimed by pathologists that they are able to determine that the body was alive when it was thrown from the height in question, by reason of the fact that they found blood in certain organs. How can this proof be sustained in court? If you are unable to give me this information will you kindly mention certain authors whom I might consult? I will be pleased to reimburse you for any reasonable expense attached to your investigation or answer to these questions. Thank you very kindly for the courtesy of a prompt reply. Please omit name.

M.D., Illinois.

ANSWER.—In answer to the first part of the first question it may be said that, generally speaking, an antemortem clot—thrombus—is firmly adherent at some point or points of the vessel or the heart cavity within which it has been formed. It may vary in appearance and consistency according to age and other circumstances. If formed shortly before death by extension from an older thrombus it may be largely fibrinous and somewhat elastic, and if it is in the heart there may be marks to show that it has been subjected to the heart's action. After death the blood tends to settle in dependent parts; in the heart and the large veins the red cells will be at the bottom, and the clot above may be more or less yellowish. These layers may possibly give some indication of the position of the body when the blood clotted. Postmortem clots are not adherent to the wall of the vessel or heart cavity with which they are in contact.

The second part of the question does not seem quite clear. It appears to refer to the possibility of distinguishing between blood clots found immediately after death and later. To distinguish a postmortem clot found immediately after death from one found in a body dead for, say, twelve hours is not possible.

In answer to the second question it may be said that, if the body has been dead several hours before its precipitation from the height, immediate examination might reveal unmistakable signs of earlier death, such as more or less well developed postmortem rigidity, postmortem lividity, and possibly even beginning decomposition.

The third question is not definite enough to warrant further consideration than to say that blood may be found in various organs and places in deaths from various causes and under various circumstances.

PROTECTION OF EAR AGAINST EXPLOSIVE NOISES

To the Editor:—Please give me information regarding the best method of protecting the ears when engaged in target practice with small arms, such as pistols, revolvers and rifles. There are on the market several "ear plugs" for this purpose. Which do you consider to be the most proficient? Is the use of cotton sufficient for this purpose? If so, should it be dry or moistened with glycerin or some other substance? Target practice is the chief source of recreation of this patient, and the continued ringing in the ears for the past three days has been diagnosed by an otologist as due to nerve disturbance from this cause. Please omit name.

M.D., California.

ANSWER.—While many appliances have been devised to use as ear plugs to prevent damage to the drum membranes in the presence of rifle or cannon shot, the use of a cotton pledget moistened with glycerin has been found to be about as good as anything. If very loud sounding guns are used, it is sometimes better to open the mouth at the time of the discharge of the cannon. It is quite possible that producing intense noises near the ears will cause a degeneration of a certain portion of the organ of Corti and the auditory nerve itself, thus giving rise to a distressing tinnitus.

WIDAL TESTS AND EXAMINATIONS OF FOOD HANDLERS

To the Editor:—The city health department of San Diego, Calif., requires an examination of food handlers. The only laboratory work required is a specimen of blood for Wassermann and Widal tests, and a mouth smear for Vincent's. This, in my opinion, is insufficient; most certainly this work should cover, if it is to be comprehensive, sputums for tuberculosis and possibly throat cultures for diphtheria. Please tell me specifically whether or not the Widal test is of any value in this connection except in possible occasional value in picking up an individual who is coming down with typhoid. In my opinion, a large portion of Widal tests are positive because of former attacks of typhoid or inoculations against typhoid, which have been given in such widespread amount, especially to ex-service men. Is the Widal test of any value in this condition? Please omit name.

M.D., California.

ANSWER.—A Widal test used in the examination of food handlers, except for a possible laboratory diagnosis of typhoid and paratyphoid fever, is of little or no value. The fact that a person shows a positive Widal test and has no clinical evidence of typhoid or paratyphoid fever shows that he probably has received typhoid immunization or has previously had an attack of the disease.

The proper method to use to detect typhoid carriers is to examine specimens of feces and urine, preferably collected after elaterin catharsis. This method should be used also in detecting carriers of paratyphoid fever, and bacillary and amebic dysentery.

Some cities require a physical examination of food handlers, and suggestive chest observations are followed up by a careful physical and sputum examination.

OPTIMUM TIME FOR BLOOD TRANSFUSION

To the Editor:—I should like information concerning the time when a transfusion of blood serves its greatest value to the recipient. In the case of an operation of election, I want to know whether the transfusion should be done immediately or twelve, twenty-four or forty-eight hours before the operation. I have in mind a patient with tuberculosis of the spine who is to be subjected to a long operation of the Hibbs, Albee or the combined types; another who should have an arthroplasty of the hip; another who should have a laminectomy for a suspected spinal cord tumor. As a prophylactic measure a blood transfusion is advisable. Should it be done twelve, twenty-four or forty-eight hours before the spine operation? In short, I want to know when the recipient derives maximum preoperative benefit from a blood transfusion. Please omit name.

M.D., Illinois.

ANSWER.—Transfusions are given preliminary to extensive operations such as are mentioned usually as a prophylactic against shock. In addition they will of course raise the hemoglobin and red cell count, improve the patient's general condition and make the patient a more favorable operative risk. There has been some difference of opinion as to the ideal time to employ this procedure, but experience has shown that the greatest benefit is derived when the transfusion is given immediately prior to the operation. As soon as the transfusion is completed, the anesthesia is begun. Patients treated in this fashion usually show no evidence of shock. Large doses of

blood should be employed: for adults, between 750 and 1,000 cc. For extremely extensive and shocking procedures it is occasionally necessary to repeat the transfusion after the operation.

MONILETHRIX

To the Editor:—A child, aged 3 years, has a disorder of the scalp. The hairs are scanty, coarse and brittle. There are also small papular elevations in the scalp. A diagnosis of monilethrix has been made at a skin clinic. What are some therapeutic measures known for this condition? Please omit name.

M.D., St. Louis.

ANSWER.—Monilethrix is familial and probably an hereditary anomaly like ichthyosis. No effective treatment is known. Epilation by roentgen rays has been reported of benefit in some cases, without causing any improvement in others. Stimulation by means of ointments containing salicylic acid, resorcinol monoacetate, sulphur and one of the tars may be tried. A cautious trial of thyroid or anterior pituitary extract or a combination of them might be made. A good article on this subject is that by G. M. MacKee and Isadore Rosen (*J. Cutan. Dis.* **34**:444 [June], 506 [July] 1916).

AUSCULTATION IN EMPYEMA

To the Editor:—1. What is one to note on auscultation in empyema with an underlying pneumonic condition of the lung? 2. In pleurisy with effusion without a pneumonic process? 3. In empyema without a pneumonic process? In all three cases, granted that the bronchi are not plugged with tenacious mucus, and breath sounds are transmitted to the pneumonic process.

GERALD A. CYR, M.D., Waterville, Maine.

ANSWER.—1. The layer of pus usually obscures or obliterates the breath sounds and muffles voice sounds; but, in places where the pus layer is thin, bronchophony may be present.

2. Breathing is faint or absent. Voice sounds frequently are nasal—egophony.

3. The breath is usually inaudible. The voice sounds are faint or nasal. The whispered voice is better transmitted through serous than through purulent exudate.

PERSISTENT PAIN AFTER HERPES ZOSTER

To the Editor:—A woman, aged about 50, had an attack of herpes zoster along the course of the lumbo-abdominal nerves, eighteen months ago. The eruption disappeared in the usual time but the severe pain still persists. Has there been any treatment discovered that will relieve these pains other than severing the posterior nerve roots at the spine? Please omit name.

M.D., Texas.

ANSWER.—Paravertebral injection of a local anesthetic and, if this is but temporarily successful, paravertebral injection of alcohol might render the operative procedure unnecessary.

ELECTROCARDIOGRAPHIC APPARATUS

To the Editor:—Is there a practicable portable electrocardiograph on the market? Is the Sanborn machine accurate and sufficiently rugged for practical use?

JAMES L. ROBINSON, M.D., Los Angeles.

ANSWER.—Portable electrocardiographs are of the amplifier or the string galvanometer type. Several practicable machines of both types are now available. The Victor (amplifier) and the Sanborn (string galvanometer) are among the most satisfactory instruments. Each, arranged in convenient carrying cases (the Victor in two, the Sanborn in three), is equipped with battery and charger and will operate anywhere; the total weight is about 100 pounds. These are more satisfactory for portable work than the electrical models. The advantages and disadvantages of these types of electrocardiographs are discussed in "The Fundamentals of Electrocardiographic Interpretation," by J. Bailey Carter (THE JOURNAL, Oct. 1, 1932, p. 1167).

RETENTION OF URINE IN DEMENTIA PARALYTICA

To the Editor:—A man with dementia paralytica in the advanced stage suffers from retention of urine. The bladder is distended up to the umbilicus. Conservative measures, such as hot applications to the bladder region and continuous baths, failed to provoke spontaneous urination. Should the patient be catheterized? One of my colleagues states that the urologist Hugh H. Young expressed an opinion that patients with dementia paralytica with retention of urine should never be catheterized, because of danger of infection (cystitis?), and also because their bladders do not rupture. Should the patient be left alone or catheterized? Please omit name.

M.D., Pennsylvania.

ANSWER.—A patient with retention from a cord bladder may be allowed to run along until the bladder overflows. This may decrease the chances of infection but may increase the possibility of renal damage due to back pressure.

In many of these patients, sooner or later, infection develops even though they are not catheterized. The use of an indwelling catheter, left in place for some weeks, may improve the bladder function to some extent. However, the prognosis in these cases is bad as far as function of urination is concerned.

BLOODY SEMEN

To the Editor:—A man of 70, who had a suprapubic (central lobe) prostatectomy performed five years ago with a histologic report of adenoma, now for the past year and a half has ejaculated bloody or chocolate colored semen at intercourse. What is the probable cause of this? Please omit name.

M.D., Minnesota.

ANSWER.—It is not likely that the prostatectomy of five years ago has anything to do with the present bloody ejaculations. The posterior urethra should be examined with a cystourethroscope. Often distinct pathologic conditions, such as tumors, either benign or malignant, or areas of granulation or ulceration, may be found. Of lesser frequency may be mentioned small pieces of calculi broken off from a bladder calculus, which may be lodged in the urethra. At times the blood may be due to a seminal vesiculitis.

"USE OF THYROID"

To the Editor:—I was much interested in the question put to you by a physician from North Carolina, which under the title "Use of Thyroid" appeared on page 1797 of THE JOURNAL, June 3, and in your reply. The question I thought thoroughly pertinent. With your reply I cannot entirely agree. If you care to present my views to the doctor through your columns, I shall be glad to have you do so.

In the first place, I think it fair to assume that the doctor means that the dose of thyroid mentioned was per day, not per week. The important point about dosage you have not raised; namely, What brand of thyroid was used? The different brands vary greatly in strength. In calorigenic activity, for example, I have found that 1 grain of Armour's preparation is equivalent to about 3 grains of Burroughs Wellcome's or to two-thirds grain of Parke Davis's. So unless the brand is known, dosage is meaningless.

I would take issue with your advice that intravenous thyroxine be substituted. I do not believe that thyroxine intravenously, or any other way, has any place in the treatment of hypothyroidism. If thyroid is really needed, thyroid by mouth will work. However, I am far from convinced that the doctor's patient needs thyroid at all. There are not a few normal people or people without thyroid disease whose basal metabolic rates run as low as —22. Indeed, I practically never see the full-blown picture of myxedema except when the basal metabolic rate level is well below —30. The present patient may well be one whose low metabolism is not caused by any thyroid lack. Thyroid therapy therefore may be simply making her slightly thyrotoxic. A feeling of well being is often a manifestation of thyroid excess. Though loss of appetite isn't the usual finding, it nevertheless occurs in some thyrotoxic persons. The doctor doesn't tell what happened to the metabolic rate when thyroid was given. This it is important to know as well as the true dosage. Presumably it rose. Why the heart rate didn't rise I cannot say. Perhaps she has heart block and it cannot go up. We have observed one such case in the Thyroid Clinic of the Massachusetts General Hospital (Aub, J. C., and Stern, N. S.: Thyroid Extract and Heart Block, *Arch. Int. Med.* **21**: 130 [Jan.] 1918). An electrocardiogram would throw light on this. It would also show whether the T wave changes characteristic of myxedema are present. Another laboratory finding which may be helpful in distinguishing between genuine hypothyroidism and other forms of hypometabolism is the blood cholesterol. Dr. L. M. Hurxthal has found elevations of over 200 mg. per hundred cubic centimeters in true hypothyroidism, and normal levels not over 150 mg. per hundred cubic centimeters in nonmyxedematous low rate cases. His remarks will appear in the *New England Journal of Medicine* in the discussion of the symposium on endocrinology of the Section on Medicine of the Massachusetts Medical Society held June 6.

My recommendation in the present case would be that, for the time being at least, thyroid be discontinued and some cause for the symptoms, other than hypothyroidism, be sought.

J. H. MEANS, M.D.,
Massachusetts General Hospital, Boston.

AFRICAN TRIBES WHICH LIVE ON BLOOD

To the Editor:—In THE JOURNAL, April 15, Dr. Halton inquires about an African tribe which lives on blood. The Masai probably were meant. If the inquirer will get a copy of "The Physique and Health of Two African Tribes," by Gilks and Orr, Medical Research Council Special Report Series 155, he will find all the dietary information he desires.

"The staple articles of diet are meat, milk and blood. The blood is drawn from the living animal by puncture of the jugular vein with an arrow."

"The average diet of Masai males of the warrior class is: meat, 1,135 Gm.; milk, 2,000 cc.; blood, 50 cc."

A neighboring tribe—the Kikuyu—live on an almost exclusive vegetarian diet of "cereals, tubers, plantains, legumes and green leaves." The commonest diseases found among the Kikuyu were bronchitis and ulcers, among the Masai intestinal stasis and arthritis.

Quotations are from the mentioned report, which may be purchased from His Majesty's Stationery Office, London, for 2 shillings.

B. B. MICHENER, M.D.,
Friends Mission Hospital, Kisumu, Kenya.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Boston, Sept. 19. *Application should be filed before August 1.* Sec., Dr. William H. Wilder, 122 S. Michigan Ave., Chicago.

CALIFORNIA: *Regular.* Los Angeles, July 24-27. *Reciprocity.* Los Angeles, July 24. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Endorsement.* Hartford, July 25. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* The examinations will be held at centers where there are five or more candidates, Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

ADDITIONAL HOSPITALS APPROVED

The Council on Medical Education and Hospitals of the American Medical Association has given its approval to the following hospitals since the publication of the last previous list in THE JOURNAL, March 11:

Hospitals Approved for Intern Training

Norwalk General Hospital, Norwalk, Conn.
Faulkner Hospital, Boston.
Quincy City Hospital, Quincy, Mass.
Homeopathic Hospital of Essex County, East Orange, N. J.
Presbyterian Hospital, Newark, N. J.
El Paso City-County Hospital, El Paso, Texas.
Mercy Hospital, Janesville, Wis.
Mercy and St. Mary's Hospitals, Oshkosh, Wis.

Hospitals Approved for Residencies in Specialties

Hillman Hospital, Birmingham, Ala. Residencies in gynecology, obstetrics, medicine, urology, otolaryngology, surgery and orthopedics.
Passavant Memorial Hospital, Chicago. Gynecology, medicine, ophthalmology (including otolaryngology) and surgery.
Kankakee State Hospital, Kankakee, Ill. Psychiatry.
Robert Koch Hospital, St. Louis. Tuberculosis.
St. Louis City Hospital No. 1, St. Louis. Gynecology, medicine, psychiatry, obstetrics, otolaryngology, pathology, pediatrics, radiology, surgery and urology.
Bayonne Hospital and Dispensary, Bayonne, N. J. Urology.
Hudson River State Hospital, Poughkeepsie, N. Y. Psychiatry.
Watts Hospital, Durham, N. C. Surgery.
Jewish Hospital, Cincinnati. Medicine and surgery.
Starling-Loving University Hospital, Columbus, Ohio. Gynecology, obstetrics, medicine, urology and surgery.
Miami Valley Hospital, Dayton, Ohio. Obstetrics, medicine, pathology and surgery.
Kensington Hospital for Women, Philadelphia. Gynecology and obstetrics.
St. Joseph's Sanatorium, El Paso, Texas. Tuberculosis.

Rhode Island January Examination

Dr. Lester A. Round, director, Rhode Island Public Health Commission, reports the written and practical examination held in Providence, Jan. 5-6, 1933. Nine candidates were examined, all of whom passed. One physician was licensed by endorsement. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Boston University School of Medicine	(1927) 80.2, (1931)		86.4
Harvard University Medical School		(1930)	80
Tufts College Medical School	(1910) 83.8, (1917) 80, (1931) 91.8,	(1932)	80.4*
New York Homeopathic Medical College and Flower Hospital		(1931)	82.8
Laval University Faculty of Medicine		(1930)	81.6

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Tufts College Medical School		(1931)	N. B. M.Ex.

*License withheld pending completion of internship.

Washington January Report

Mr. Charles R. Maybury, former director, Department of Licenses, reports the written examination held in Seattle, Jan. 16-17, 1933. The examination covered 8 subjects and included 80 questions. A grade of at least 60 per cent was required in all subjects. Sixteen candidates were examined, all of whom passed. Five physicians were licensed by reciprocity with other states and two physicians were licensed by endorsement. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine		(1930)	77
University of Colorado School of Medicine		(1932)	76
Northwestern University Medical School	(1931) 73,	(1933)	78
University of Illinois College of Medicine		(1933)	82
Harvard University Medical School		(1931)	81
Middlesex College of Medicine and Surgery		(1931)	75
Creighton University School of Medicine	(1932) 71,* 72,*	75,* 77*	
University of Nebraska College of Medicine		(1931)	70
University of Oregon Medical School	(1931) 75, 78, (1932) 76,* 80*		

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado School of Medicine		(1932)	Colorado*
State University of Iowa College of Medicine		(1929)	Iowa
University of Minnesota Medical School		(1915)	Minnesota
St. Louis University School of Medicine		(1932)	Missouri*
University of Oregon Medical School		(1930)	Oregon

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Stanford University School of Medicine		(1931)	N. B. M. Ex.
University of Minnesota Medical School		(1930)	N. B. M. Ex.

*Washington licenses withheld pending completion of internship.

Missouri January Examination

Dr. E. T. McGaugh, state health commissioner, reports the written examination held in Jefferson City, Jan. 2-3, 1933. The examination covered 14 subjects and included 77 questions. An average of 75 per cent was required to pass. Six candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Northwestern University Medical School		(1932)	84.8, 86.1
University of Kansas School of Medicine		(1932)	86.1
St. Louis University School of Medicine		(1932)	84, 84.1, 89

Twelve physicians were licensed by reciprocity with other states and 4 physicians were licensed by endorsement from January 2 to May 1. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Atlanta Medical College, Georgia		(1915)	Mississippi
Northwestern University Medical School		(1930)	Illinois
Rush Medical College		(1932, 2)	Illinois
University of Kansas School of Medicine		(1932)	Kansas
Tulane University of Louisiana School of Medicine		(1930)	Louisiana
Johns Hopkins University School of Medicine		(1908)	Penna.
Ohio State University College of Medicine		(1929)	Ohio
University of Tennessee College of Medicine	(1928),	(1930, 2)	Tennessee
Marquette University School of Medicine		(1916)	Minnesota

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Harvard University Medical School		(1930)	N. B. M. Ex.
University of Minnesota Medical School		(1927)	N. B. M. Ex.
Washington University School of Medicine		(1926)	N. B. M. Ex.
University of Pennsylvania School of Medicine		(1931)	N. B. M. Ex.

Book Notices

Italian Medicine. By Arturo Castiglioni, M.D., Professor of the History of Medicine, Royal University of Padua, Italy. Translated by E. B. Krumbhaar, M.D., Professor of Pathology, University of Pennsylvania. No. 6, Clio Medica: A Series of Primers on the History of Medicine. Edited by E. B. Krumbhaar, M.D. Cloth. Price, $1.50. Pp. 134, with 11 illustrations. New York: Paul B. Hoeber, Inc., 1932.

This is a volume in the series Clio Medica, edited by Professor Krumbhaar of the University of Pennsylvania and consisting of primers on various phases of the history of medicine. Its author is Professor Castiglioni of the University of Padua, whose Storia della medicina (Italian edition, Milan, 1927; French edition, Paris, 1931) is well known to all who are interested in the history of medical science. Only one who is a master of his subject could compress so much information in such small compass as Castiglioni has done here. It takes only a few hours to read the book, but on laying it down one feels that one has a picture of Italy's contribution to medicine that will not soon be forgotten. Nor is it a mere catalogue of names. For there is also a careful, though necessarily brief, analysis of the social, ecclesiastical or political conditions that sometimes promoted and sometimes retarded the advance of the science. After a brief introduction covering the Greek tradition, the author discusses the contribution of the Romans to medicine, assigning to it far more importance than any previous writer has ever done. He then passes on to a description of the famous school of Salerno, and any one who is under the impression that the entrance of women into the profession is relatively recent will be surprised to read that a woman doctor, one Trotula, *mulier sapientissima,* practiced in Salerno in the eleventh century. Then comes in successive chapters an account of the first universities of Italy, of medicine in the

Italian renaissance, and of its progress in the seventeenth, eighteenth, nineteenth and twentieth centuries. There is steady stress on the clinical tendency of Italian medicine as contrasted with the theoretical and laboratory trends of northern Europe. Among the numerous distinguished Italian physicians of whom thumb-nail sketches are given, a few may be selected for special mention: Vesalius (1514-1564), who showed that Galen's observations were based exclusively on the cadavers of animals; Fracastoro, who wrote the famous poem "Syphilis, sive morbus gallicus" (1530); Malpighi (1628-1694), the first great medical scientist who used the microscope in his studies; Morgagni (1682-1771), founder of modern pathologic anatomy; Spallanzani (1729-1799), who discovered the possibility of generation by division; Flaiani (1741-1808), who contributed largely to the discovery of exophthalmic goiter; Bassi (born in 1773), a pioneer in micropathology; Cesare Lombroso (1839-1909), famous for his studies in psychiatry and the founder of Italian anthropologic studies, and Guido Baccelli (1832-1916), pathologist, teacher and humanist.

Der Coronarkreislauf: Physiologie. Pathologie. Therapie. Von Dr. Max Hochrein, Professor an der Universität Leipzig. Paper. Price, 24 marks. Pp. 227, with 54 illustrations. Berlin: Julius Springer, 1932.

In this book the author has supplemented a great volume of clinical and experimental work in the Leipzig clinic with a carefully prepared outline of the literature dealing with coronary circulation. The first section, devoted to the consideration of anatomy, is divided into discussion of the coronary arteries, coronary veins and lymph circulation. Under this heading is also considered the mechanism of nervous control. These subjects are exhaustively covered. The second section is devoted to a presentation and discussion of experimental research on the coronary. This section contains the greatest amount of original work of the author. In this division the author reports the experimental and clinical work in physiology and pharmacology of the circulation. Great importance is attached to this because of the close relationship between the circulation of blood itself through the heart and the heart action. The third section is devoted to the discussion of the coronary system itself and the discussion is taken up under the headings of pathologic physiology and pathologic anatomy, with the final part devoted to the clinical aspects of coronary disease. To the clinician, the final section is of greatest interest. The fund of material is well displayed in the representative cases cited. This material is presented by a discussion of the special disease conditions, which includes a study of general symptomatology and electrocardiography in coronary disease. The book is closed with a discussion of special therapy in the conditions discussed. The work is complete and well written. The bibliography is especially complete. While there is little new material in this book, the great care with which the material has been collected and presented makes this a noteworthy book on coronary disease.

A Manual of Embryology: The Development of the Human Body. By J. Ernest Frazer, F.R.C.S., Professor of Anatomy in the University of London. Cloth. Price, $8. Pp. 486, with 282 illustrations. Baltimore: William Wood & Company, 1932.

This "manual" has three characteristics: 1. It is written for students by an examiner and teacher who invites his students to look at embryos instead of at pictures or descriptions. 2. It is condensed. It is not a complete review and storehouse of information but an introduction helping the young students to form intelligent and connected mental pictures of the developing embryo. 3. Regions of the body are presented instead of structures or systems of structures. This method is followed partly because it is believed to be more convenient and useful to the student and partly because the study is based on the author's preparations. The first section (110 pages) is devoted to early and general development of the embryonic period (first two months), followed by a chapter on general growth throughout intra-uterine life and another on maternal connections—placenta, fetal membranes and parturition. This part is more condensed than in most textbooks. The second part (364 pages), is devoted to the development of regions—and organs and systems. (It is impracticable to follow the regional method exclusively.) The illustrations are nearly all original pen and ink sketches or diagrams made by the author. A valuable feature is the representation of a structure at several successive stages of its development with numbers appended to each part representing the length of the embryo in millimeters. The manual on the whole represents an attempt at simplification and can be recommended for the use of medical students in the general or basic medical course. Students with special interests will want to refer also to larger textbooks.

Recent Social Trends in the United States. Report of the President's Research Committee on Social Trends. In two volumes. With a foreword by Herbert Hoover, President of the United States. Paper. Price, $10. Pp. 1568, with illustrations. New York & London: McGraw-Hill Book Company, 1933.

This is a great symposium of views by leading authorities as to the trend of various interests in this country during the last twenty-five years. The essays and sketches are exceedingly uneven in their content and presentation. Particularly unfortunate was the choice of Harry H. Moore, director of the work of the Committee on the Costs of Medical Care, to prepare the section on medicine. Mr. Moore was long since committed to a certain definite point of view which has not changed, and his contribution to this series merely serves to emphasize further his personal bias for state medicine. It is true that there has been a trend toward state medicine, but it might be well in connection with the discussion of this trend to point out that the vast majority of the American medical profession is opposed to the trend and that nothing is inevitable in the field of social changes. The two great volumes composing this symposium offer a vast amount of statistical material and data, so that they constitute an invaluable reference work for every one interested in discussions in this field.

Set the Children Free! By Fritz Wittels. Translated by Eden and Cedar Paul from the fourth German edition. Cloth. Price, $2.75. Pp. 242. New York: W. W. Norton & Company, Inc., 1933.

This is an English translation of the fourth original German edition, which was revised by the author for this purpose. The manner of presentation and point of view of the author are familiar to many in this country, as he lectured extensively throughout the United States and is also known through his writing on psychoanalytic problems. This is intended as a textbook for parents of normal children and to be used as a guide in the psychologic care of children from a psychoanalytic standpoint. The author attempts to present the mental life of the child and the laws under which he functions; also the manifold problems of childhood and how the parents can help the child to meet them. However one may feel as to the correctness of the author's views, one cannot help but appreciate that Dr. Wittels has a sympathetic understanding of most of the practical problems of children. The text covers the usual list of subjects discussed in works on child training as well as problems relating to stepchildren, illegitimate children, orphans, and children of divorced parents. The last chapter is a brief account of the educational system of Germany and Austria and the recent changes it has undergone and the suggested changes for the future. As in most books on this subject, the reader must not be carried away by what appears to be logical. A judicious parent reading this book must examine carefully the evidence presented. With the author leading the children in conquest for freedom, he must weigh the facts. The work is stimulating and will materially assist the reader to appreciate the mutual problems of parenthood and childhood.

Die Röntgendiagnostik der männlichen Harnröhre. Von Dr. Erich Langer, dirigierenden Arzt der dermatologischen Abteilung am Krankenhaus Berlin-Britz. Paper. Price, 9 marks. Pp. 92, with 60 illustrations. Leipzig: Leopold Voss, 1931.

This small book demonstrates in a brilliant manner the pathologic changes in the male urethra which can be visualized by roentgenography. These changes are often in the nature of a surprise. No other method will show with the same clarity the extent and relations of strictures, para-urethral canals and congenital anomalies. The technic of roentgenography of the male urethra is not simple, but it has been admirably mastered and described by the author. The illustrations are exceptionally clear and each carries a legend in French, German and English. The volume can be heartily recommended and will well repay careful study of its contents.

Review of Legal Education in the United States and Canada for the Year 1932. By Alfred Z. Reed, Staff Member in Charge of the Study of Legal Education. Paper. Pp. 67. New York: Carnegie Foundation for the Advancement of Teaching, 1933.

"Balancing the budget" is a sufficiently familiar phrase. In the Annual Review of Legal Education, however, Dr. Reed makes use of it in an unaccustomed sense, for he applies it not merely to the fiscal operations of law schools and universities but to the broader aspects of the problem of legal education regarded from the point of view of society as a whole. He asks what proportion of the cost of his education should be met by the student himself and what part by the voluntary or involuntary contributions of others. Should public funds be devoted to vocational and professional education irrespective of the number of specialized experts that our current economic system can absorb?

The author discusses at length the problem of student selection, declaring that the simplest, most infallible method of determining whether an individual is qualified to practice a profession is to let him try, and acknowledging that no system of selection can ever be devised so scientifically accurate that it will leave in the profession every one who ought to be there and eliminate every one who ought not. He gives two reasons for rejecting the policy of "laissez faire." First, because of its unfairness to the public, whose interests would often be inadequately served, and, second, because of its cruelty to the individual, who may discover his error only after a great waste of time and money and when it has become almost impossible for him to prepare himself for another career. Granted that authority may intervene to bar the path to a chosen vocation, the later in a candidate's preparation that this barrier is erected the less likely it is to be an efficient protection to society; the earlier, the less injurious to the applicant himself, for he may the more readily adapt himself to another objective.

The effect of the depression on law school attendance is shown by a decrease of 15 per cent from 1928 to 1931. Figures for 1932 are still lower.

Comparative tables show the present requirements for admission to the bars of sixty states and Canadian provinces, and changes in the number of law schools of different types, and of their students, during the last forty years.

In the United States and Canada, 88 schools are classified as full time, while 107 are part time, offering instruction at hours convenient for self-supporting students. Current standards of the American Bar Association and of the Association of American Law Schools are found in an appendix.

The Review of Legal Education is distributed without charge by the Carnegie Foundation, 522 Fifth Avenue, New York.

Le virus tuberculeux. Par le Dr. Jean Valtis, professeur de phtisiologie à l'Université d'Athènes. Bibliothèque de phtisiologie sous la direction de Léon Bernard, professeur de clinique de la tuberculose à la Faculté de médecine de Paris. Préface du Pr Calmette. Paper. Price, 36 francs. Pp. 241. Paris: Masson & Cie, 1932.

This manual is a partisan exposition of the views of the Pasteur Institute group on the bacteriology and immunology of tuberculosis. The first chapter deals mainly with various normal and abnormal forms of the tubercle bacillus, with special emphasis on granular and non-acid fast forms. The second chapter is devoted to the description of filtrable forms, and methods are given for successful filtration. An interesting point is the statement that B C G cultures have only a few filtrable elements. The author gives detailed experimental filtrations, out of which typical bacilli and virulence were obtained by animal passage. The third chapter is devoted to heredity and maternal transmission. The author dispenses the ideas of hereditary resistance and hypersensitiveness but states that a mother with advanced progressive tuberculosis may pass the virus to the fetus more often than usually thought, the lesions in the infant differing from those due to virulent bacilli. The last chapter is on antituberculous vaccination with the "bacillus bilie de Calmette-Guérin" (B C G). The discussion of technical methods is cursory, and most of the text is given to quotations of certain experimental results and their confirmation, and a refutation of contradictory work. In this book, as in other writings from the same source, any contrary results are imputed to ignorance and error. The statistics presented do not vary in any way from those previously published by the originator of this method of vaccination, and those interested can find them in recent English publications. The final and all important thesis of the book—that prophylaxis in tuberculosis is to be gained by the use of living, attenuated, nonpathogenic organism of fixed virulence, to be used as a vaccine—is reached by means of the views exposed gradually throughout the book. The author is convinced of the existence of granular and filtrable forms of the tubercle bacillus but does not credit the American dissociation forms; he believes, in spite of a return to virulence of many cultures by animal passage, and the transfer of a virus from mother to child in utero, that B C G is an organism of fixed virulence, all experimental work to the contrary notwithstanding. It is therefore the answer to the long search for a suitable prophylactic method. The story is a good, one-sided view which almost reaches the point of propaganda.

Chemistry of the Opium Alkaloids. By Lyndon F. Small, Consultant in Alkaloid Chemistry, United States Public Health Service, University of Virginia. Assisted by Robert E. Lutz, Associate Professor of Chemistry, University of Virginia. Prepared by direction of the Surgeon General. Supplement No. 103 to the Public Health Reports. U. S. Treasury Department, Public Health Service. Cloth. Pp. 375. Washington, D. C.: Supt. of Doc., Government Printing Office, 1932.

As the title indicates, this is a book on pure chemistry. There is no suggestion of pharmacology or therapeutics. The material has been assembled in the course of a systematic study of the literature of the opium alkaloids and gives the impression of completeness and accuracy. The nomenclature adopted is that most commonly used in contemporary publications; in case of doubt, the German name has been accepted. This, as the authors state, leads to some unavoidable inconsistencies, but one has no difficulty in finding a discussion of the substance desired. This is a valuable source book of references on alkaloid chemistry, but especially the chemistry of opium. The authors have included a list of books on alkaloid and synthetic chemistry seldom cited in bibliographies, which in itself is of great value to chemists, research workers and others interested in chemical literature. The book is divided into two parts: 1. The benzylisoquinoline and minor alkaloids, which includes the chemistry of papaverine, xanthaline, laudanosine, laudanine, laudanidine, codamine, tritopine, narcotine, gotarnine, tarconine, gnoscopine, oxynarcotine, narceine, hydrocotarnine, cryptopine, protopine, papaveramine, lanthopine, meconidine, rhoeadine and aporeine. 2. The phenanthrene alkaloids, which includes morphine, pseudomorphine, codeine, neopine, porphyroxine, the halogenomorphides and halogenocodides; the isomers of morphine and codeine, the thiocodides, the desoxycodeines, codeinone, hydroxycodeinone, apomorphine, the methylmorphimethines, morphol and morphenol, thebaine, thebainone, thebenine, morphothebaine, phenyldihydrothebaine, and the constitution of morphine. The references are exhaustive and include 1,976 or more. It is quite impossible to appreciate the vast amount of work necessary to complete a work of this kind, or to evaluate it too highly. It is a book that should be in every chemical, pharmacologic and pharmaceutic library and is recommended to every one interested in the subject.

Grundzüge einer Konstitutionsanatomie. Von Professor Dr. Walter Brandt, Abteilungsvorsteher am Anatomischen Institut der Universität Köln. Paper. Price, 28 marks. Pp. 382, with 135 illustrations. Berlin: Julius Springer, 1931.

Professor Brandt is concerned not with diathesis or predispositions of human bodies to disease but with the dynamic constitution of living organisms. It is not a medical treatise based on human anatomy and its variations but a contribution to fundamental biologic philosophy. The phenomena that make up the life history of a living organism, plant or animal represent the play of energies through structural forms in a series of processes, which constitute its life history. These processes follow a regular sequence, each completing itself and giving place to others. They fall into three categories: (1) embryologic formation, (2) growth and (3) differentiation. Through them, all the various "types," genera and species of animals and plants arise, live through their life changes and die. Professor Brandt seeks to understand the causes underlying, producing and governing these phenomena. Obviously there is involved a space factor—form or "orthotopic potential"; and also a time factor—speed of determination; i. e., rate at which

stage follows stage in the life history or metamorphosis. The laws of embryologic formation are revealed in the whole science of experimental embryology (see Brandt's law of specific induction, 1927). Growth is influenced by the environment, external and internal (hormones). The conditions of growth and differentiation are discussed and illustrated by citation of results of experiments on the development of many plants and animals. The author suggests that the familiar systematic classifications based on the forms of adults be supplemented by another based on something more dynamic; namely, reactions to experimental embryologic procedures. In this, "isodromes" or "determinative equivalents" would be classed together. Through experimental embryology he hopes to arrive at experimentally provable relationships, which will add much to classification from the standpoint both of types and of heredity. The book is the product of many years of study and independent thought on fundamental biologic problems. As such it will be interesting and valuable to biologists. An extensive bibliography, arranged under the headings that have been listed, will be of value to all biologists.

The Effects on Women of Changing Conditions in the Cigar and Cigarette Industries. By Caroline Manning and Harriet A. Byrne. Bulletin of the Women's Bureau, No. 100. United States Department of Labor, Women's Bureau. Paper. Pp. 187. Washington, D. C.: Supt. of Doc., Government Printing Office, 1932.

This study, made under the auspices of the United States Department of Labor, indicates the effects of the machines on the employment—or rather unemployment—of women in this industry. The book begins with a brief history of the tobacco industry. The manufacture of cigarets began in 1864, with a total production of twenty million. Today production runs into billions. Most of this book is concerned with an analysis of the way in which unemployment has been brought about. For instance, there were 27,366 cigar manufacturers in 1900 but only 7,552 in 1930. A similar relative decrease took place in the number of cigaret factories. Nevertheless, in the same period of time the production of cigarets rose from 3 billion to 124 billion. During the same period the production of cigars increased only about 6 per cent.

Moderne Therapie der Neurosyphilis mit Einschluss der Punktionstechnik und Liquor-Untersuchung. Von Bernhard Dattner, Dr. med. et jur., Assistant der Klinik für Psychiatrie und Neurologie in Wien. Mit einem Vorwort von Hofrat Prof. Dr. J. Wagner-Jauregg. Cloth. Price, 22 marks. Pp. 334, with 53 illustrations. Vienna: Wilhelm Maudrich, 1933.

This monograph is an expansion of a series of lectures given by the author to English-speaking students. It bears a foreword from Wagner-Jauregg, under whose direction much of the author's work has been done. The major emphasis of the book is, as might be expected, on the fever treatment, particularly with malaria, of dementia paralytica. Comparatively little space is devoted to other methods of treatment or to the application of various types of treatment to other forms of neurosyphilis than dementia paralytica. The contents include descriptions of the technic of lumbar and cisterna puncture, of serologic tests on spinal fluid and their interpretation, of treatment methods (fever by various agents, chemotherapy, subdural treatment); of the application of these methods to and the results obtained in dementia paralytica, tabes, and cerebrospinal syphilis; and a discussion of the pathogenesis, prophylaxis and immune relationships of neurosyphilis. On the whole, the book is complete, compactly presented and valuable to the physician called on frequently to manage neurosyphilitic patients. Newer methods of inducing fever, such as diathermy and short wave radio, are briefly described and the author properly points out that, as compared with malaria, these and other physical fever-producing agents seem, on the one hand, to be less satisfactory than malaria and, on the other, to be as yet in the distinctly experimental stage. The method of presentation is appropriate either for the general practitioner or for the expert neurologist or syphilologist. The author displays more familiarity than many German writers with investigations in other countries; the bibliography of twenty-one pages contains references to forty-seven articles in English. It is regrettable that this monographic form of medical writing is not more widely practiced in the United States. It is an exceedingly valuable method of presenting a subject concisely and at the same time completely.

Economy in Higher Education. Part I: Principles. Part II: Administration. By David S. Hill, Staff Associate, Division of Educational Enquiry, the Carnegie Foundation for the Advancement of Teaching, and Fred J. Kelly, Chief, Division of Colleges and Professional Schools, the United States Office of Education. With a preface by Howard J. Savage, Secretary of the Foundation. The Carnegie Foundation for the Advancement of Teaching in Cooperation with the United States Office of Education, Department of the Interior. Paper. Pp. 127. New York: Carnegie Foundation for the Advancement of Teaching, 1933.

In this volume the Carnegie Foundation and the United States Office of Education have joined forces to analyze the influence of the present economic situation on the agencies of higher education. Publication was made possible by a grant from the Carnegie Corporation. The study consists of two parts, dealing, respectively, with principles and administration. Dr. David Spencer Hill of the foundation contributes part I; part II is the work of Dr. Fred J. Kelly, chief of the Division of Colleges and Professional Schools of the United States Office of Education. Under the caption "Urgent Issues" is presented a thoughtful discussion of the duties and responsibilities of administrative officers and boards of control. Economy and efficiency are defined and the major problem now confronting educational authorities is stated as "the necessity of effecting retrenchment with a minimum of educational loss." Elaborating this idea, Dr. Hill points out the dangers of hasty or sweeping reductions of salaries and indicates avenues by which budgetary adjustments may be accomplished with least risk of destroying permanent values. The President's Committee on Social Trends is quoted to the effect that the costs of education from 1915 to 1929 did not rise so rapidly as other governmental expenditures and that, in numerous ways, savings can be effected without jeopardizing the social function of colleges and universities. A plea is made for the reappraisal of educational aims and for the formulation of a sound philosophy to justify the use of public funds in the support of a coherent program of higher education. In the second part Dr. Kelly describes the waste involved in unnecessary duplication of institutions, departments and courses, especially when these have no more secure foundation than local or personal pride. He calls attention to the lack of means for determining the cost of research, which without question is a large but generally unrecognized factor in university budgets. The final chapter deals with some problems of institutional management, such as employment of personnel, salaries, accounting, purchasing and periodic reports. Nothing could be more timely than this candid presentation of the need for a clearer understanding of the social aspects of higher education, the mechanisms of public support, and the responsibilities of those officers vested with control.

A Study of Nephritis and Allied Lesions. By John Gray. Medical Research Council, Special Report Series, No. 178. Paper. Price, 2s. 6d. Pp. 141. London: His Majesty's Stationery Office, 1933.

The author has attempted to make a satisfactory classification of the nephritides by comparing the clinical histories with the anatomic conditions found after death. There is nothing new about this effort. The literature contains many similar attempts, the most noteworthy of which was made by Vollhard and Fahr. The present writer adds nothing to the exhaustive study of the German clinician and pathologist. He meets with the standard difficulty in all studies of this type, that the clinical course of the disease does not permit one to predict the anatomic disturbances, and vice versa. To overcome this impasse he deliberately selects what appeals to him from each group and rejects what does not fit into his program. In this study there is no attempt to search out etiology or to evaluate treatment.

Peptic Ulcer: Clinical Roentgenology, With Case Histories. By Jacob Buckstein, M.D., Instructor in Gastrointestinal Roentgenology, Cornell University Medical College. Volume X, Annals of Roentgenology: A Series of Monographic Atlases. Edited by James T. Case, M.D., Professor of Radiology, Northwestern University Medical School. Second edition. Cloth. Price, $12. Pp. 417, with 404 illustrations. New York: Paul B. Hoeber, Inc., 1933.

In this edition, many new illustrations and important points have been added, and the literature has been brought down to date. The significance of the niche as a guide for the healing of an ulcer is well stated and amply illustrated. Frequent evidence of the disappearance of the niche in gastric and duodenal ulcers, under medical management, justifies a conservative attitude. The chapter on the study of the mucous membrane of the stomach and duodenum, under normal as well as patho-

logic conditions, is especially well presented. Each case is presented from the clinical, pathologic and roentgenologic phases of ulcer. The operating room and necropsy results are also provided.

Das Quecksilber; seine Gewinnung, technische Verwendung und Giftwirkung, mit eingehender Darstellung der gewerblichen Quecksilbervergiftung nebst Therapie und Prophylaxe. Von Dr. med. Ernst W. Baader, Dozent für Berufskrankheiten an der Universität Berlin, und Dr. med. Ernst Holstein, Gewerbemedizinalrat in Frankfurt (Oder). Veröffentlichungen aus dem Gebiete der Medizinalverwaltung, Band XXXX. Heft 1. Paper. Price, 12.60 marks. Pp. 239, with 21 illustrations. Berlin: Richard Schoetz, 1933.

This excellent monograph on industrial relations and toxicology of mercury is all the more welcome as it is evidently based on large personal experience. It contains, in addition to an interesting historical introduction, chapters on the chemistry and technology of mercury, the pathogenesis, symptomatology, pathology and treatment of mercurial poisoning, and the hygiene and legal requirements for the protection of those who work with this metal.

Medicolegal

Malpractice: A Tort or a Breach of Contract

(Trimming v. Howard (Idaho), 16 P. (2d) 661)

The defendant-physician was treating the plaintiff for spinal meningitis. A needle that he was using in making an intraspinal injection broke and part of it remained in the patient's back. The defendant operated to remove the lost part of the needle and later he represented to his patient that it had been removed. When the accident happened, July 4, 1926, the plaintiff was a minor, about 19 years old. He became of age, May 13, 1928, and on April 3, 1931, about two years and eleven months later, he instituted this suit. In it he charged that the defendant had violated his contractual duty and had falsely represented that the part of the needle that had been broken off in the plaintiff's back had been removed. He claimed that he did not discover the falsity of the defendant's alleged misrepresentation until June 25, 1930. The defendant-physician, however, contended that the action, being an action based on malpractice, was an action in tort and was therefore barred by the statute of limitations. The trial court took this view of the case and dismissed the suit, and the plaintiff appealed to the Supreme Court of Idaho.

The complaint, said the Supreme Court, primarily alleges that the plaintiff and the defendant-physician entered into a contract for treatment. The defendant, however, did not expressly contract to use extraordinary skill and care, and only by implication agreed that he would use ordinary and reasonable care. That is only another way of saying that he contracted to discharge a duty imposed by law. Aside from the allegation of fraud on the part of the defendant, the basic allegations of the complaint are directed solely to carelessness, negligence and misconduct. The physician is not arraigned for a breach of his contract. He is arraigned for delinquencies in carrying that contract into execution. Those delinquencies, if they occurred, constitute nothing but malpractice, and the action is an action in tort, not an action for a breach of contract.

The plaintiff contended, however, that under the Idaho statutes (C. S. sec. 6611, subd. 4), a cause of action based on fraud does not accrue until the aggrieved party discovers the facts constituting the fraud and that he did not discover the alleged fraud in this case until June 25, 1930, less than two years before the action was begun. In order to invoke the statute cited by the plaintiff, said the Supreme Court, the action must rest solely on the fraud charged and the proof of that fraud must be essential to the granting of relief to the plaintiff. The statute with respect to the accrual of causes of action, relied on by the plaintiff, applies only to actions in which there is no injury except that arising out of the fraud itself. There was no merit in the plaintiff's contention that the alleged fraudulent concealment of the cause of action by the defendant stayed the running of the statute of limitations.

The action of the trial court in dismissing the suit was affirmed.

Medical Practice Acts: Discretion of Board in Granting Licenses by Reciprocity.—Ruffu, a graduate of a class C medical school, had been licensed to practice medicine in Illinois and sought a license by reciprocity in New Jersey. The New Jersey medical practice act authorizes the board of medical examiners, in its discretion, to issue a license without examination to a person who has been examined and licensed in another state, the standards of which when the applicant was licensed were substantially equal to those of New Jersey at that time. It was admitted that when Ruffu was licensed in Illinois the standards there were substantially equal to those then in force in New Jersey, but the New Jersey board nevertheless refused to grant him a license. Ruffu sought by mandamus to compel the board to do so. The only question to be determined, said the supreme court of New Jersey, is whether or not the board abused its discretion. Ruffu is a graduate of a class C medical school, a school not in good standing, in the opinion of the New Jersey board. He was therefore not eligible even for admission to an examination in New Jersey, for the medical practice act there requires every person admitted to examination to have the degree of doctor of medicine, conferred by a medical school which, in the opinion of the board, is in good standing when the degree is conferred. Under the circumstances, said the court, the board did not abuse its discretion in refusing to license Ruffu by reciprocity. His application for a writ of mandamus was rejected.—*Ruffu v. Board of Medical Examiners (N. J.), 163 A. 15.*

Privileged Communications: Statement of Name of Attending Physician in Application for Insurance Not a Waiver.—A person who states in his application for insurance the name of a physician who treated him for a certain ailment does not thereby waive his right to have the information acquired by that physician in the course of attendance treated as a privileged communication. The privilege of secrecy may be claimed also by a beneficiary suing on the insurance policy.—*Novak v. Chicago Fraternal Life Ass'n (Kan.), 16 P. (2d) 507.*

Evidence: Testimony of Expert Witness as Invasion of Province of the Jury.—An employee, who had broken his arm in the course of his employment, sued the defendant insurance company with which his employer carried indemnity insurance. The trial court refused to permit three medical experts, called by the insurance company, to state their opinions as to the extent to which the employee had lost the use of his hand. The proffered testimony, the trial court concluded, would be an invasion of the province of the jury. The insurance company appealed to the court of civil appeals of Texas, Amarillo. A medical expert, said the court of civil appeals, may not only give his diagnosis of the state of a person's health but also state his conclusion as to the cause of the injury or disease and make a prognosis concerning the physical condition. His opinion, when predicated on stated reasons, is admissible to show the extent of a personal injury. The object of all testimony is to prove the very fact to be found by the jury, and it is not usurpation of the powers of a jury to prove that fact. Since it was conceded that the physicians whose testimony was excluded by the trial court were qualified as experts and were in a position from observing and treating the employee to testify, it was error for the trial court to exclude their testimony.—*Zurich General Accident & Liability Inc. Co., Limited, v. Kerr (Texas), 54 S. W. (2d) 349.*

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, Chicago, August 10-12. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

Ohio State Medical Association, Akron, September 7-8. Mr. Don K. Martin, 131 East State Street, Columbus, Executive Secretary

Washington State Medical Association, Seattle, August 28-30. Dr. Curtis H. Thomson, 1305 Fourth Avenue, Seattle, Secretary.

Western Branch Society, American Urological Association, Vancouver, B. C., August 3-5. Dr. George W. Hartman, 999 Sutter Street, San Francisco, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

17: 589-872 (March) 1933

Review of Recent Literature of Tar Cancer (1927-1931 Inclusive). M. G. Seelig and Zola K. Cooper, St. Louis.—p. 589.
Idiopathic Osteopsathyrosis. L. S. Goin, Los Angeles.—p. 668.
Multiple Myeloma: Report of Five Cases. E. Scott, F. M. Stanton and Mary Oliver, Columbus, Ohio.—p. 682.
Genetic Studies on Transplantation of Tumors: IV. Linkage in Tumor 19308 A. J. J. Bittner, Bar Harbor, Maine.—p. 699.
Id.: V. Tumor 19308 B. J. J. Bittner, Bar Harbor, Maine.—p. 709.
Id.: VI. Tumor 19308 C. J. J. Bittner, Bar Harbor, Maine.—p. 717.
Id.: VII. Comparative Study of Tumors 19308 A, B and C. J. J. Bittner, Bar Harbor, Maine.—p. 724.
Ambivalent Effect of Single Acute Trauma on Growth of Transplanted Mouse Tumors. M. C. Marsh, Buffalo.—p. 735.
Embryonal Nephroma in Sheep. W. H. Feldman, Rochester, Minn.—p. 743.
*Melanoma of Scalp: Report of Case and Review of Literature. Ida J. Mintzer, New York.—p. 748.
*Improved Technic for Massive Tissue Culture. G. O. Gey, Baltimore.—p. 752.
Calculation of Dosage from Intracavitary Radiation. M. C. Reinhard and H. L. Goltz, Buffalo.—p. 757.
Four Gram Pack. M. C. Reinhard, Buffalo.—p. 763.
Calculation of Dosage from Radon Seeds. M. C. Reinhard and H. L. Goltz, Buffalo.—p. 770.
*Technic for Intensive Roentgen Irradiation of Neck. B. P. Widmann and J. L. Weatherwax, Philadelphia.—p. 777.
Life Size Outlines for Gynecologic Cancer Case Records. R. L. Dickinson, New York.—p. 784.

Melanoma of Scalp.—Mintzer reports a fatal case of melanoma of the scalp which illustrates how a benign pigmented mole that has been subjected to repeated trauma or chronic irritation may become transformed into a malignant melanoma. The lesion diagnosed clinically as "sebaceous cyst" and removed in 1928 was a fully developed melanoma, and the failure on the part of the surgeon to have the specimen examined is inexcusable. Recurrence was noted six months later, and death ensued a year after the recurrence had appeared. The first lesion was apparently localized, and the dissemination followed the second operation in spite of the roentgen treatment. In all probability, at the time roentgen therapy was given to the metastases in the cervical glands, there were metastases in the retroperitoneal glands and in the liver.

Technic for Massive Tissue Culture.—Gey outlines a method for massive tissue culture which consists in the utilization of the entire inner surface of the culture tube for the growth of the tissue cells implanted in it. In addition, it is possible to bring about a sort of washing action on the growing tissue cells by revolving the tube slowly at a controlled speed, thus allowing the supernatant fluid to bathe them constantly. The revolving action of the tube is brought about by a special device. The necessary slow movement has been found in preliminary experiments to be from one-half to one hour for each turn, or just enough to prevent a violent action of the supernatant fluid which would wash the growing cells free from the inner wall of the tube. By a simple adjusting mechanism the necessary slow movement can be varied and regulated to any desired speed. The method permits the maintenance of permanent strains of many types of cells in laboratories when sufficient technical help is not available to maintain the large numbers of cultures necessary when other methods of tissue culture now in use are employed. It eliminates to a great extent the cumbersome and detailed transfer technic involved when the cover slip method is used. As the entire medium is available for the growth of the cells contained in it, this simple roller tube method is economical, and the amount of medium used becomes almost directly proportional to the amount needed for the cultures it contains.

Technic for Irradiation of Neck.—The method of Widmann and Weatherwax for obtaining the sum total skin intensity resulting from the four direct beams, as well as the overlapping and transmitted radiation, is as follows: An anatomic cross section is drawn at the level of the desired central point of irradiation and enlarged according to the exact measurements of the patient to be treated; an isodose chart is applied to each of four portals anterior, posterior, right and left lateral. The depth of the dose to any part of the neck from all four fields can readily be ascertained. The isodose charts from four fields at right angles to one another will show that the total skin intensity is practically the same as the depth intensity and represents a homogeneous distribution of the radiation throughout the irradiated area. By clinical observation on a series of forty-seven cases, the authors found that the maximum safe dose which can be administered, within a period of eight or ten days, is 225 per cent skin erythema dose or 1,800 roentgens (as measured in air) to every part of the skin surface of the neck. Each skin intensity represents 100 per cent direct radiation.

American Journal of Surgery, New York

19: 411-602 (March) 1933

*Use of Sclerosing Solutions in Treatment of Cysts and Fistulas. E. C. Cutler and R. Zollinger, Boston.—p. 411.
Thrombo-Angiitis Obliterans: Consideration of Disease and Its Management. H. R. Mahorner, New Orleans.—p. 419.
Study of Thymophysin in First Stage of Labor: Observations on Its Effect on Blood Pressure. M. G. DerBrucke, Brooklyn.—p. 429.
Pelvimetry: Some General Considerations. H. Thoms, New Haven, Conn.—p. 435.
*Appendicitis in Pregnancy. W. B. Marbury, Washington, D. C.—p. 437.
Myosarcoma of the Stomach: Report of Case. C. R. Edwards and R. B. Wright, Baltimore.—p. 442.
Comparison of the Anatomic, Clinically Normal and Pathologic Stomach. A. G. Brenizer, Charlotte, N. C.—p. 446.
Removal of Open Safety Pin from Duodenum. J. T. Wallace, New York.—p. 453.
Gallstone Intestinal Obstruction. H. D. Junkin, Paris, Ill.—p. 456.
Acute Intestinal Obstruction Due to Gallstones. I. J. Vidgoff, Los Angeles.—p. 458.
Review of Recent Advances in the Knowledge of the Pathology of the Liver and Their Clinical Application. F. C. Helwig, Kansas City, Mo.—p. 462.
Incomplete Intestinal Rotation. B. Newburger, Cincinnati.—p. 474.
*Adiposis Dolorosa. C. L. Wilson, Boston.—p. 485.
*Surgical Method for Relief of Pain. V. I. Razumovsky, Beshtau, Essentuky, Russia.—p. 489.
Practical Application of Microphone in Teaching of Surgery. R. C. Chaffin, Los Angeles.—p. 491.
Restoration of Function of Hand and Arm, Following Radical Amputation of Breast. C. G. Roberts, Chicago.—p. 494.
Medicolegal Importance of the Physician's and Hospital Records. S. A. Lewis, Hollywood, Calif.—p. 497.
Dermoid Cyst of Ovary, Perforating into Urinary Bladder with Profuse Hematuria. G. H. Ewell, Madison, Wis.—p. 502.
Suprapubic Cystotomy and Prevention of Pelvic Cellulitis. L. T. Mann, New York.—p. 505.
Technic of Bartholin Cyst Excision Following Paraffin Injection. L. S. Auster, New York.—p. 509.
*Use of Bacterial Filtrates (Antivirus) in Genito-Urinary Infection. L. Nerb, Brooklyn.—p. 511.
Problems of Prostatism: Suggested by a Study of One Hundred Recent Cases. N. P. Rathbun, Brooklyn.—p. 515.
Perirenal Hydronephrosis: Case Report in Infant of Seven Months. M. F. Campbell, New York.—p. 523.
Foreign Body (Chewing Gum) in Urinary Bladder: Report of Two Cases. R. D. Gill, Wheeling, W. Va.—p. 528.
Fibroma of Kidney: Report of Case. L. V. Rush and H. L. Rush, Meridian, Miss.—p. 531.
Résumé of Spinal Anesthesia. W. N. Kemp, Vancouver, B. C., Canada.—p. 534.
Ox Fascia (Dead Fascia) Graft. S. T. Glasser, New York.—p. 542.
Hoffa's Disease and External Cartilage Injury in Same Knee. H. E. Hipps, Marlin, Texas.—p. 545.
The Cripple, Often a Needless Liability. W. Truslow, Brooklyn.—p. 549.

Sclerosing Solutions in Cysts and Fistulas.—Cutler and Zollinger report cases of gliomatous cysts (astrocytomatous type), cervical fistulas and pilonidal sinuses in which they used a solution consisting of 6 cc. of absolute alcohol, 3 cc. of chloroform, 1 cc. of glacial acetic acid and 1 Gm. of ferric chloride, as a sclerosing agent. The application of the solution has either greatly assisted in making an operation more complete, in the cases of gliomatous cysts, or it has been able to cure the condition without radical surgery, in cases of cervical fistulas and pilonidal sinuses. The authors state that the successful use of a chemical substance without risk to the patient and without the disfigurement of a scar suggests that this method should have much wider application. It is of course in the field of small

fistulas with a lining membrane not more than a few cells deep that this method will find its greatest usefulness. They themselves were surprised at the success obtained in cases of pilonidal sinus. After opening the pilonidal sinus widely, thus allowing the fixative to reach and destroy all the epithelial surfaces, the destroyed lining of the cyst wall was curetted away. Since the patient can be ambulatory during the treatment and since excellent results have been obtained in their cases, they believe it worth while to attempt this method in most of the cases seen, for radical surgery can always be resorted to later. Their experiments in neurologic surgery have shown that the solution penetrates more quickly, produces less underlying encephalitis, makes thin cyst linings tougher and more easily handled, and is a better hemostatic agent.

Appendicitis in Pregnancy.—Marbury believes that every obstetric patient should be questioned concerning abdominal discomfort, with especial reference to the appendix. In doubtful chronic cases a barium meal followed by roentgenoscopy is helpful. In nonsuppurative cases during the first six months the outlook for both mother and child is excellent. Later the mortality increases directly as the duration in months of the pregnancy and the duration in hours of the appendicitis. Pregnancy is not an etiologic factor in primary appendicitis but tends to cause recurrences in which a pathologic condition already exists. Motion of the infant and the sag of the pendulous uterus are definite obstacles to the formation of adhesions and partially account for the frequency of generalized peritonitis. Early operation is the greatest factor in lowering mortality. Too much dependence should not be placed on a moderate temperature and leukocyte count, as these may give a false sense of security. A careful history, especially with reference to previous attacks, is of inestimable aid. The direct approach through a muscle splitting incision is advocated in nonsuppurative cases. In the presence of generalized peritonitis a cesarean section should be done, followed by the removal of the uterus, as in the Porro operation.

Adiposis Dolorosa.—Wilson points out that the fact that there have been no consistent observations in all the cases reported shows that adiposis dolorosa is not a clinical entity. It seems more reasonable to assume that the condition is one of either simple obesity or lipomatosis associated with neurosis or neurasthenia, and that the pathologic conditions found in cases that have come to necropsy were incidental. Whether obesity is to be explained on the basis of energy intake alone or energy intake and endocrine gland disturbances is not entirely settled. The preponderance of evidence points toward the latter. This is borne out by adiposis cerebralis (Frohlich's syndrome), which is a disease of obesity associated with consistent pathologic changes in the pituitary gland. On the other hand, improvement in cases of adiposis dolorosa has been observed when the diet alone has been reduced. It is well, therefore, to look on adiposis dolorosa as a syndrome of lipomatosis or generalized or localized obesity associated with neurasthenia or neurosis. The treatment is symptomatic. The author reports a case.

Surgical Method for Relief of Pain.—Physiologic and clinical data convince Razumovsky that one can eliminate pain in neuralgia not only by means of dissection of sensory nerves but also by other means, such as various effects on the sensory receptors in neuralgia of peripheral origin, which apparently predominates, and on the pain conductors and the ganglion centers. He has previously reported his method of alcoholization for the treatment of neuralgia of the trigeminus; namely, the irrigation of the common carotid artery and its bifurcations, i. e., the beginning of the external and the internal carotid, aiming to affect the nerves in this artery and around it which reach the peripheral ramifications, the capillaries, and perhaps also the receptors. He has cured numerous cases of neuralgia by alcoholization, some cases having been observed during a period of two years. He has also observed some relapses and therefore he urges that the irrigation include the portion of bifurcation. He has also had good results in treating angiosclerotic gangrene, ischias, gastralgia, hepatalgia, neuralgia and painful tumors. The author believes that alcoholization will replace many serious operations, such as radicotomy, ramisection and chordotomy.

Bacterial Filtrates.—Nerb states that, in the intradermal injection of bacterial filtrates in genito-urinary infections, it is essential to have a 1 cc. syringe graduated in twentieths of a cubic centimeter, using either a Luer or tuberculin syringe and a three-fourths inch, 25 gage needle. The upper arm is usually chosen for the injection except in women, in whom it is given in the thigh. The injection is made by holding the needle parallel to the skin surface. With the oval point visible, it is inserted slowly into the papillary layer and the solution is slowly injected. If the injection is given correctly, a nontranslucent white wheal is produced, circumscribed, with a pinkish border. It is the author's practice to start with a small dosage, that is, 0.1 cc., and to increase it 0.1 cc. each time, until 1 cc. is given. It is better to give the injection every forty-eight hours and to keep the dosage smaller, not exceeding 0.5 cc. if a large local reaction occurs. Smaller doses may be given or the filtrate diluted twenty times. Besredka's bacterial filtrates, even if not specific, will increase natural resistance by stimulating the reticulo-endothelial system. It is essential, if stock filtrates are given, to define accurately the specific strain of the organism causing the infection. Bacterial filtrates have proved of value in gastro-enterology and in the treatment of infectious arthritis. Using freshly killed organisms and the bacterial filtrate as a diluent should prove of more value in intradermal treatment, since the soluble toxins are incorporated with the bacterial protein.

American Review of Tuberculosis, New York

27: 217-314 (March) 1933

Alcohol and Tuberculosis. L. Brown and J. T. Eagan, Saranac Lake, N. Y.—p. 217.
*Change of Climate and Altitude: I. Its Effects on Tuberculosis Patients. E. W. Phillips, Phoenix, Ariz.—p. 247.
Comparison of Certain Mediums for Cultivation of Tubercle Bacilli from Sputum. M. F. Shaffer, Oxford, England.—p. 259.
Comparison of Tissue Reactions to Pulmonary Infection with Tubercle Bacilli in Animals of Varying Resistance. A. J. Vorwald, Chicago. —p. 270.
Sensitization of Guinea-Pigs and Production of Allergy and Anaphylaxis to Tuberculoprotein. H. S. Reichle and H. Goldblatt, Cleveland. —p. 291.
*Tape Test with Tuberculin Ointment. E. Wolff, with the assistance of M. H. Teitler, San Francisco.—p. 308.
Method of Recording Roentgen-Ray Readings. H. B. Pirkle, Rockville, Ind.—p. 311.

Climate and Altitude in Tuberculosis.—Phillips reviews the records of 309 patients with pulmonary tuberculosis, who during the winter resided in a sanatorium near Phoenix, Ariz., at an altitude of 1,079 feet, and during the summer months at an altitude of 5,300 feet, returning to Phoenix in October, in order to determine the effect of such a climatic change. Two thirds of the patients were classed as far advanced. Only the known hyperthyroid and those whose apneic pause was markedly shortened were denied treatment in the higher altitude. The seasonal cycle in which these patients lived was marked by reduplications of early summer and late summer, with dry air, abundant sunshine and comfortable outdoor temperatures throughout the year. The body weight curves of these patients showed a definite seasonal trend, apparently related to the length of the days and the intensity of solar radiation. They lost weight from April to July and gained during the other months. Body weight in this group was not governed by air temperature, relative humidity or percentage of possible sunshine, nor was it affected by the change of altitude in either direction. Women gained proportionately less weight than men and exhibited a wider seasonal variation in their weight. More than one third of the men and women alike, when moved from a low to a high altitude, showed a moderate acceleration of the pulse rate. This faster pulse was not accompanied by any increase in the clinical activity of their disease. The body temperatures of these patients, whether febrile or normal, were not affected by the change of climate and altitude. The incidence of pulmonary hemorrhage was almost exactly the same in the higher altitude as in the lower. A tendency to hemoptysis was not found to contraindicate the change, though all patients so transferred were kept unusually quiet during the period of adjustment.

Tape Test with Tuberculin Ointment.—Wolff outlines the technic for application and reading of a tuberculin-ointment tape test. The ointment is easier to apply and causes less psychic disturbance and fewer untoward reactions than does

old tuberculin in the intracutaneous method of testing. The agreement between the ointment test and the intracutaneous test in all dilutions, as applied to 190 children, was 95.8 per cent. The ointment test is generally comparable in results with the intracutaneous old tuberculin test in a dilution of 1:100. The technic is as follows: The area of application is the paravertebral region between the eighth and eleventh thoracic vertebrae. The skin is cleansed with green soap and water, dried, bathed with benzene and then dried again. A pea-sized drop of the semiliquid tuberculin ointment is applied on the right side, and a similar drop of the control ointment on the left side. Each of these drops is covered with a two-inch square of adhesive tape. The test is read in forty-eight hours. The adhesive tape is removed after soaking with benzene and the area is gently cleansed with benzene. Ten minutes after removal, the reaction may be clearly observed. A positive reaction exhibits papules, erythema, induration and pigmentation.

Annals of Surgery, Philadelphia

97: 321-480 (March) 1933

*Dead Bone Grafts to Repair Skull Defects. B. E. Pankratiev, Kazan, Russia.—p. 321.
Studies on Acute Cranial and Intracranial Injuries. E. S. Gurdjian, Detroit.—p. 327.
Chemical Treatment of Periosteum in Thoracoplasty to Inhibit Rib Regeneration. C. M. Van Allen, Peiping, China.—p. 368.
*Longitudinal Bone Growth: Influence of Sympathetic Deinnervation. J. D. Bisgard, Chicago.—p. 374.
Interscapulothoracic Amputation for Secondarily Infected Tuberculosis of Shoulder. H. Milch, New York.—p. 381.
Recurring External Dislocations of Patella. B. F. Buzby, Camden, N. J.—p. 387.
*Treatment of Malunion Following Unreduced Pott's Fracture. L. C. Wagner, New York.—p. 394.
Subcutaneous Angiomas of Breast. J. G. Menville and J. C. Bloodgood, Baltimore.—p. 401.
Effect of Blood in Experimental Peritonitis. L. Rademaker, Philadelphia.—p. 414.
*Traumatic Ulnar Neuritis, with Especial Reference to Late or Tardy Ulnar Paralysis. F. M. Conway, New York.—p. 425.
*Treatment of Sarcoma of Long Bones. W. B. Coley, New York.—p. 434.

Dead Bone Grafts to Repair Skull Defects.—Pankratiev presents four case histories of skull repair by means of dead human bones, in one of which cranioplasty was performed because of a recent complicated skull fracture, with both an immediate and a final good result. In the second case, cranioplasty was used to cover an old defect causing traumatic epilepsy, and a disfiguring scar on the forehead. The result six months after the operation showed permanent improvement. In the third case, dead human bone was used because of an enormous skull defect 15 by 10 cm. in size, after the extraction of an osteosarcoma of the skull case. The operation proceeded smoothly, offering no difficulties, but the patient's unexpected inability to withstand the anesthetic prevents the author from reporting a case which he believes would have shown an excellent surgical result. In the fourth case, a congenital defect of a child's skull and cerebral hernia were successfully treated. The author concludes that the method is applicable both to fresh, noninfected wounds and to old bone defects with scar tissue. In the event that infection is anticipated, the application of cranioplasty seems inexpedient. The later suppuration of the wound would probably necessitate the extraction of the transplant, preventing a favorable result. Such defects as those formed after the extraction of bone skull tumors and in congenital cerebral hernia may be considered amenable to cranioplasty. In order to prevent the possibility of postoperative meningitis as well as acute purulent encephalitis, bone transplants of exact size and shape should be used and fastened with wire sutures.

Longitudinal Bone Growth.—Bisgard points out that, in normal experimental animals, longitudinal bone growth is not influenced by sympathetic deinnervation. Retarded bone growth in a monkey with residual paralysis from anterior poliomyelitis was not accelerated by sympathetic deinnervation. There is no experimental evidence to justify the use of the operation of sympathetic ganglionectomy for the purpose of accelerating bone growth. The three tried and proved methods of correction of length discrepancies of the extremities are shortening of the long extremity by osteotomy, longitudinal growth arrestment of the long extremity and lengthening of the short extremity by distraction.

Treatment of Malunion After Pott's Fracture.—Wagner states that correct alinement of all joint fractures should always be eagerly sought for and one should have no hesitancy in proceeding with open reduction in all fractures about the joints, if proper position cannot be secured by closed methods. The author has developed a type of open operative treatment for cases of malunion following unreduced Pott's fracture which corrects the vertical and transverse alinement of the ankle joint proper and which tends to throw the weight bearing in its proper normal line. The leg is prepared in the usual manner and a tourniquet is applied. The skin and subcutaneous tissues about the internal malleolus are divided and the lower end of the tibia is exposed. A similar incision is made over the external malleolus, but it is not necessary to expose the lower end of the fibula. The old fracture line of the deformed internal malleolus is removed with a chisel, a wedge of bone being taken out. A linear osteotomy of the lower end of the fibula is performed and the foot is placed in marked inversion, until the vertical and transverse alinement of the ankle joint is secured. The wedge of bone is reshaped and placed between the separated ends of the fibula and should hold the foot in its newly assumed corrected attitude. A plaster dressing is applied with the foot in marked inversion and should extend from the toes to the knee. At the end of six weeks from the date of operation, another cast is applied with the foot in slight inversion and the patient is encouraged to bear weight. Ten weeks from the operation, a caliper brace to fit in the shoe and extend to the knee is applied. Walking is encouraged in the corrected attitude. All support can be usually discarded about seven months after the operation, when all signs of traumatic arthritis of the ankle joint have disappeared.

Traumatic Ulnar Neuritis.—Conway believes that the lesions in which a disturbance of the normal relation between the ulnar nerve and its nerve bed exists may be grouped under the general heading of "traumatic neuritis." The clinical entity of late ulnar palsy is then to be regarded as being within this group. The condition is not common but is easily diagnosed in the light of a history of an old fracture about the elbow, followed years later by increasing weakness and atrophy of the hand. The original fracture is almost invariably a fracture of the external condyle of the humerus sustained during childhood. Of all the methods of surgical intervention, that of transplanting the ulnar nerve is by far the simplest and has given the most striking results. The author reports a case of ulnar neuritis in which the original fracture occurred twenty years before the development of symptoms and in which definite objective and subjective improvement was manifest as early as two weeks following the anterior transplantation.

Treatment of Sarcoma of Long Bones.—For osteogenic sarcoma, especially the type associated with marked new bone formation, Coley advises immediate amputation as soon as the diagnosis has been established. In order to lessen the chances of a recurrence, Coley's toxins should be given as a prophylactic for a period of six months. While endothelial myeloma is highly sensitive to both toxins and irradiation, rarely has the disease been controlled by irradiation alone. Toxins alone or toxins combined with irradiation have resulted in a large number of five-year recoveries, in some instances after the disease had reached the inoperable stage and metastases had developed. The author believes that a combination of the systemic effect of Coley's toxins and the local effect of irradiation offers the greatest hope of saving the patient's life as well as his limb in this type of tumor. Early amputation followed by prolonged toxin treatment would undoubtedly give a higher percentage of five-year recoveries, and for this reason it is well to let the patient have a voice in the final decision as to the method to be employed. In treating giant cell tumors of the long bones he advises early and thorough curettage, swabbing out the cavity with a 50 per cent solution of zinc chloride or phenol and alcohol, closing the wound without drainage, and then on the third or fourth postoperative day starting a short course (four weeks) of prophylactic toxin treatment to be given in moderate doses. Primary amputation or resection should almost never be performed in this type of tumor. His series contains many cases in which large areas of bone destruction were completely restored by nature, showing that resection and bone grafting are unnecessary. He reports a series of 360 cases, which includes

a large number of inoperable, hopeless cases in which recovery occurred under treatment and the patients have remained well for more than five years, and nineteen permanent recoveries that took place prior to 1913.

Archives of Dermatology and Syphilology, Chicago

27: 373-548 (March) 1933

*Treatment of Epithelioma of the Lip by the Dermatologist. J. A. Elliott, Charlotte, N. C.—p. 373.
Cholesterol and Lecithin Studies in Syphilis: Cholesterol Partition in Relation to Wassermann Reaction. I. Rosen, Frances Krasnow and M. A. Lyons, New York.—p. 383.
Cutis Verticis Gyrata: Report of Case. E. K. Stratton, San Francisco.—p. 392.
*Sodium Dehydrocholate in Arsphenamine Poisoning: Preliminary Report. B. Appel, Boston.—p. 401.
Hypersensitivity to Mercurochrome Shown by Patch Test. Frances Pascher and Mabel G. Silverberg, New York.—p. 408.
Keratosis Blennorrhagica. S. O. Chambers and G. F. Koetter, Los Angeles.—p. 411.
Multiple Fibromas: Recklinghausen's Disease. J. T. Wayson, Honolulu, Hawaii.—p. 421.
*Pseudoxanthoma Elasticum: Report of Five Cases Illustrating Its Association with Angioid Streaks of the Retina. J. W. Jones, H. S. Alden and E. L. Bishop, Atlanta, Ga.—p. 424.
Relapsing Febrile Nonsuppurative Panniculitis (Weber). H. E. Alderson and S. C. Way, San Francisco.—p. 440.
Leprosy Proteus. J. G. Urueña, Mexico City, Mexico.—p. 450.
LXIII. Pyoderma Gangrenosum: Report of Case. C. W. Lane and C. M. Stroud, St. Louis.—p. 460.
*Bacteriologic Studies on Lichen Planus: Preliminary Report. F. M. Jacob and T. R. Helmbold, Pittsburgh.—p. 472.
Nevo-Epithelioma Adenoides (Cylindroma) of the Scalp. A. W. Stillians, Chicago.—p. 481.
Creeping Eruption Due to Ancylostoma Braziliense. L. McCarthy, Washington, D. C.—p. 490.
The Senear-Usher Syndrome: Variety of Lupus Erythematosus. L. Taussig, San Francisco.—p. 498.

Treatment of Epithelioma of the Lip.—Elliott treated sixty-six cases of primary epithelioma of the lip by electrocoagulation and irradiation. In none of the cases has there been a local recurrence or metastasis to the lymph nodes. In one case a possible metastasis to the brain developed seven years following the removal of the lesions on the lip. Electrocoagulation and irradiation offer a high percentage of cures in early epithelioma of the lip. The end-results are as good as, if not better than, those obtained by any other method of treatment. The dermatologist by virtue of his diagnostic ability is in a preferred position to treat such lesions.

Sodium Dehydrocholate in Arsphenamine Poisoning.—Appel states that sodium dehydrocholate is a choleretic drug, nontoxic in 10 cc. doses of a 5 per cent solution administered intravenously at intervals of several days. It has been used to combat the toxic action of arsphenamine and its derivatives on the liver. In five cases of jaundice which developed during antisyphilitic treatment with neoarsphenamine, the patients were treated with intravenous injections of sodium dehydrocholate. There was a prompt fall of the icteric index, with rapid recovery. The author suggests that the effect may be caused by the washing of arsenic from the liver, as the result of increased choleresis. In a number of cases in which nausea and vomiting followed intravenous injections of neoarsphenamine, the patients were treated by mixing the solution of the drug with a solution of sodium dehydrocholate and injecting the mixture intravenously. The majority of the patients showed no reactions following these injections. One case is reported in detail.

Pseudoxanthoma.—Jones and his associates discuss the previously reported cases of pseudoxanthoma elasticum of the skin and point out the observations of others relating to the peculiar association of this condition with angioid streaks of the retina. Five of their cases are reported, all of which showed angioid streaks of the retina. The histopathologic pictures of the excised skin of pseudoxanthoma elasticum, senile elastosis and lineae albicantes are presented with observations on the similarity of the appearance of these conditions in all instances. The authors conclude that the association of angioid streaks of the retina and pseudoxanthoma elasticum is a frequent occurrence, that the pathologic appearance of the latter aids in a theoretical explanation of the former, and that pseudoxanthoma elasticum is a disease allied to the process that produces elastic tissue degeneration in some scars and in senility. They have found nothing in their studies to indicate that this condition is in any sense neoplastic. While there is an overgrowth of elastic fibers as well as degeneration, microscopic studies fail to show any neoplastic characters, and the clinical features of the cases seem to bear this out.

Lichen Planus.—Jacob and Helmbold isolated a gram-negative, anaerobic bacillus from twenty-five of twenty-eight cases of lichen planus. Semisolid dextrose serum agar containing cubes of human tissue was the medium used. The serum used must be inactivated at from 56 to 60 C. for a number of hours. The organism was not found in normal skin or in a number of cases of other papular diseases used as controls. Inoculation of human skin with this organism, in a few instances, produced lesions which both clinically and histologically resembled lichen planus. The organism could be easily demonstrated in section in the exudate of lichen planus lesions incubated for forty-eight hours or more.

Archives of Neurology and Psychiatry, Chicago

29: 433-682 (March) 1933

*Meningococcic Meningitis and Epidemic Meningo-Encephalopathy: Reports of One Hundred and Twenty-Two Additional Cases in the Indianapolis Epidemic and of Sixty-Eight Cases of an Epidemic Meningo-Encephalopathy. G. F. Kempf, L. H. Gilman and L. G. Zerfas, with technical assistance of Mrs. M. J. Joiner, Indianapolis.—p. 433.
Influence of Variations in Fluid Intake on Intracranial Pressure in "Epileptics." F. Fremont-Smith and H. H. Merritt, Boston.—p. 454.
Acalculia (Henschen): Clinical Study. H. D. Singer and A. A. Low, Chicago.—p. 467.
Abolition of Bulbocapnine Catatonia by Cocaine. Ethel Friedman Buchman and C. P. Richter, Baltimore.—p. 499.
*Treatment of Athetosis and Dystonia by Section of Extrapyramidal Motor Tracts. T. J. Putnam, Boston.—p. 504.
*Ménière's Disease: Diagnosis and Treatment. C. C. Coleman and J. G. Lyerly, Richmond, Va.—p. 522.
Stenosis of Aqueduct of Sylvius. H. L. Parker and J. W. Kernohan, Rochester, Minn.—p. 538.
*Hour-Glass Tumors of Spine. H. C. Naffziger and H. A. Brown, San Francisco.—p. 561.
Concomitant Dissimilar Diseases of Nervous System. N. W. Winkelman, Philadelphia, and J. L. Eckel, Buffalo.—p. 585.
Myelitic and Myelopathic Lesions (Clinicopathologic Study): II. Toxic Myelopathy. C. Davison and M. Keschner, New York.—p. 600.

Meningococcic Meningitis and Meningo-Encephalopathy.—Kempf and his associates present sixty-eight cases that do not conform to any of the described clinical entities as an acute epidemic meningo-encephalopathy in which there is a macrophagic and leukocytic response. Of the sixty-eight cases, twelve were fulminating, thirty-five less acute, and twenty-one mild. Patients in the fulminating group continued in convulsions, became comatose and died from twelve to forty-eight hours after the onset. Occasionally a patient improved after spinal drainage and the intravenous administration of dextrose. The temperature in most of these patients rose rapidly to as high as 108 F. or dropped below normal—in one instance going as low as 94.5 F. In the less severe type the patients improved rapidly after spinal drainage and frequently came out of stupor or coma after one or two punctures. In these patients the temperature, if elevated, rapidly approached normal after one or more spinal drainages. The course then showed little fever and few symptoms unless drainage was stopped. Even when the spinal fluid pressure was normal or low, drainage relieved the severe headaches from which the patients suffered. Most of the patients with the mild type of infection improved remarkably after daily spinal drainage. Several psychopathic patients contracted the disease through contact with other patients in whom it had been unrecognized; in them the mental symptoms did not improve. The mortality rate for the first sixty-eight cases was 39.7 per cent; it has since continued below 40 per cent.

Treatment of Athetosis and Dystonia.—Putnam brought about a decrease in the abnormal movements by operative section of the prepyramidal and anterior quadrant marginal fibers, or the latter alone, of the cervical cord in two cases of familial dystonia musculorum, one of bilateral choreo-athetosis following an acute infectious disease in infancy and one of unilateral athetosis following an acute infection in adult life. The operation was followed by mild signs of pyramidal tract defect in one case and hemianalgesia in another. There were no permanent ill effects from the operation and (except in one case) no sensory loss. In a case of juvenile paralysis agitans following encephalitis, the symptoms were neither relieved nor aggravated by the operation.

Ménière's Disease.—During the past two years, Coleman and Lyerly divided the eighth cranial nerve in eleven patients for the relief of Ménière's disease. The diagnosis is based on a history of attacks of violent vertigo accompanied by nausea and vomiting, tinnitus in one ear and partial deafness in the same ear. The operation for relief of Ménière's disease presents no great difficulties to those experienced in neurologic surgery. A curved incision is made over the suboccipital region on the affected side from a point on a level with the tip of the mastoid process and running upward, then inward and downward to the midline. It is important to place the bony opening laterally as far as possible without entering the mastoid cells, because the most direct approach to the cerebellopontile angle is along a line parallel to the posterior surface of the pyramid. Every effort should be made to avoid hemorrhage about the nerve. The arachnoid covering should be carefully removed before an effort is made to separate the eighth nerve from the facial nerve. If a hemorrhage about the nerve occurs on division of the eighth nerve, facial paralysis is likely to result. The exposure of the nerve should be adequate. Forcible retraction should be avoided if the facial nerve is to be protected from damage. The auditory nerve is first examined for abnormalities and is then hooked up and divided with a long, sharp-pointed knife. No attack of vertigo has followed the operation in any case, although some of the patients have had a slight unsteadiness, particularly on sudden change of position or quick movements. This unsteadiness tends to improve with time and is not disabling. Tinnitus, when not entirely abolished by the operation, has been changed and improved in every case. The authors conclude that intracranial section of the eighth nerve is highly successful in relieving the disability of Ménière's disease.

Hour-Glass Tumors of Spine.—Naffziger and Brown state that hour-glass tumors of the spine occur with far greater frequency than is indicated by the literature on the subject. They are so common that, in making a diagnosis of compression of the cord from tumor, the possibility of the tumor being of hour-glass type should be kept in mind. In the neck, careful palpation may reveal an extravertebral mass. In the dorsal and lumbar regions, as well as in the cervical region, diagnosis is aided by roentgenograms, which should include views of the intervertebral foramina and the interlaminal and interspinous spaces. Deformity of these is suggestive. The majority of hour-glass tumors are encapsulated. In some instances, complete removal of the intraspinal and extraspinal portions at one stage may be possible; in others, second-stage operations for the removal of the extraspinal portions may be required. Thoracic tumors have been removed, only to be followed by hydrothorax resulting from clear cerebrospinal fluid because the tumor was not recognized as being of the hour-glass variety and the dura was torn. The authors add fifteen cases to the sixty-eight that they reported previously.

Canadian Public Health Journal, Toronto

24: 105-154 (March) 1933

Vancouver Outbreak of Hemorrhagic Smallpox: I. Epidemiologic Study of Outbreak. J. W. McIntosh, Vancouver, B. C.—p. 105.
Id.: II. Lessons Learned from the Outbreak. J. W. McIntosh, Vancouver, B. C.—p. 112.
Id.: III. Clinical Notes. E. D. Carder, Vancouver, B. C.—p. 120.
Operation of Swimming Pools. R. F. Heath, Toronto.—p. 123.
Tularemia in Ontario: Report of Five Cases. E. P. Johns, London, Ont.—p. 128.
Final Report of Committee on Definition of Stillbirths. E. Gagnon, Montreal.—p. 133.
Laboratory History of Diphtheria in Hamilton. W. J. Deadman and F. J. Elliott, Hamilton, Ont.—p. 137.

Georgia Medical Association Journal, Atlanta

22: 83-122 (March) 1933

Clinical Significance of Classification of Gliomas. E. F. Fincher, Jr., Atlanta.—p. 83.
Observations of Some Common Breast Lesions. W. P. Nicolson, Jr., Atlanta.—p. 90.
Amebiasis: Prevalence and Protean Manifestations. S. F. Rosen, Savannah, and D. R. Thomas, Jr., Augusta.—p. 94.
Suture of Brachial Artery: Report of Case. E. Callaway, LaGrange. —p. 98.
Treatment of Abortions. P. R. Stewart, Monroe.—p. 100.
Maternal Mortality in Georgia. S. S. Smith, Athens.—p. 103.
Birth Control. S. R. Mitchell, Pineview.—p. 105.
Arachnoidism: Case Report. W. A. Walker, Cairo.—p. 105.

Johns Hopkins Hospital Bulletin, Baltimore

52: 173-254 (March) 1933

Crystalline Insulin in Treatment of Diabetes Mellitus. J. E. Howard and Agnes de Lawder, Baltimore.—p. 173
*Experiments Demonstrating That Acquired Immunity in Syphilis Is Not Dependent on Allergic Inflammation. A. R. Rich, A. M. Chesney and T. B. Turner, Baltimore.—p. 179.
Mechanism Responsible for Prevention of Spread of Bacteria in Immune Body. A. R. Rich, Baltimore.—p. 203.
*Auricular Flutter with 1:1 Response. Caroline C. Bedell, Baltimore. —p. 225.

Acquired Immunity in Syphilis.—The rabbits that Rich and his associates rendered immune to syphilis by inoculation with Spirochaeta pallida showed no allergic reaction whatever, whether macroscopically or microscopically, on intracutaneous reinoculation at periods ranging from 28 to 482 days after the primary, immunizing infection. On the contrary, the most striking phenomenon observed in the immune animals, as contrasted with the nonimmune controls, was always a remarkable indifference of the tissues of the former to the presence of the injected virus. Although allergy to Spirochaeta pallida is well known to appear during human syphilitic infection and can also be induced in the rabbit, according to Noguchi, the present experiments demonstrate that allergic inflammation is not necessary for the operation of acquired immunity in syphilis.

Auricular Flutter.—Bedell describes paroxysmal attacks of 1:1 response occurring during the course of auricular flutter in twenty-four cases. Three of these cases are reported for the first time, with electrocardiograms and tabulated analysis of the records obtained; the remaining twenty-one cases have been gathered from the literature. The twenty-four cases have been subdivided into three groups in which the mechanism seems somewhat different: 1. Two cases characterized by rapidly increasing auricular tachycardia in which 2:1 block appears shortly after a rate of from 240 to 273 is reached. 2. Four cases resembling paroxysmal auricular tachycardia, but with heart rates ranging from 212 to 244. There is no definite evidence that these are instances of auricular flutter. 3. Eighteen cases, forming a unified group, from which the characteristics of 1:1 flutter were adduced. The author observed that a 1:1 flutter occurs most frequently in the fifth decade of life; it has not been observed above the age of 57, in contrast to other forms of auricular flutter, which may occur after the age of 70. In other respects, the etiology is not dissimilar. The 1:1 paroxysms occur during the course of established auricular flutter in which a high grade of block is not established, often with increasing ease and frequency. The attack begins abruptly following exertion. Extreme weakness, shortness of breath and palpitation are the usual manifestations. Syncope, precordial pain and congestive failure may occur. After minutes or hours, the attack subsides gradually. Attacks have followed the administration of quinidine, as well as the combination of atropine and tribrom-ethanol. The attacks of syncope and the possibility of congestive failure during frequent paroxysms somewhat modify the general prognosis in flutter. Digitalis effectively prevents 1:1 paroxysms by increasing the auriculoventricular block. During quinidine administration the patient should be kept in bed because of the possibility of paroxysms.

Journal of Allergy, St. Louis

4: 163-238 (March) 1933

Treatment of Hay Fever with Standardized Pollen Extracts Based on New Unit of Protein Nitrogen. R. A. Cooke, A. Vander Veer and J. H. Barnard, New York.—p. 163.
Treatment of Hay Fever by Specialists in the United States and Canada: Report of Inquiry. H. L. Alexander, St. Louis.—p. 169.
Observations on Formation of Wheals: VI. Response of Normal and Allergic Individuals. F. S. McConnell, St. Louis.—p. 177.
*Use of Suprarenal Cortex Extract in Treatment of Bronchial Asthma. A. H. Fineman, New York.—p. 182.
Emphysema. H. L. Alexander, St. Louis.—p. 191.
Anemophilous Plants of Seligman, Arizona. R. W. Lamson and Alva Watry, Los Angeles.—p. 207.
Atmospheric Pollen. R. P. Wodehouse, Yonkers, N. Y.—p. 220.
Standard for Reading Skin Tests. H. S. Berkoff, New York.—p. 227.

Suprarenal Cortex Extract in Treatment of Bronchial Asthma.—Fineman treated four patients who had severe asthma (three protein sensitive and one nonsensitive), for a period of from one to twenty-seven months, with little or no improvement. He then used suprarenal cortex extract, beginning with a dosage of 0.5 cc. and increasing it up to 4 cc. Injections

were given three or four times weekly during the first month and once or twice weekly thereafter. Subcutaneous and intramuscular injections were administered in each case. Two patients received treatment for four months, one for three months and one for six weeks. One patient showed marked improvement in asthma, one moderate, one slight and one no improvement. In three of the patients a decided increase in strength and appetite was noted, with an average gain in weight of 4½ pounds (2 Kg.). The general condition of the patients was definitely improved. No appreciable change in blood pressure was noted during or at the end of the course of treatment. No influence on the pulse rate was observed. The author believes that the results obtained with the suprarenal cortex extract in the treatment of these four patients warrant its further trial in a larger series of cases, employing larger dosage and utilizing, if necessary, the intravenous route.

Journal of Nutrition, Springfield, Ill.

6: 113-224 (March) 1933

Nutritive Value of High and Low Calcium-Carrying Wheat. Ethelyn O. Greaves and J. E. Greaves, Berkeley, Calif.—p. 113.
Effect of Diet on Egg Composition: I. Partial Chemical Analyses of Eggs Produced by Pullets on Different Diets. H. W. Titus, T. C. Byerly and N. R. Ellis, Beltsville, Md.—p. 127.
Effect of Dairy Manufacturing Processes on Nutritive Value of Milk: II. Apparent Digestibility of Fresh Whole Milk and of Powdered Whole Milk. W. B. Nevens and D. D. Shaw, Urbana, Ill.—p. 139.
Factors Which Determine Renal Weight: XIII. Heat Production of Rat as Varied by Thyroid Administration. E. M. MacKay, F. M. Smith and K. Closs, La Jolla, Calif.—p. 151.
Id.: XIV. Relative Influence of Amino, Urea and Protein Nitrogen in Diet. E. M. MacKay, La Jolla, Calif.—p. 157.
Is Fluorine an Indispensable Element in the Diet? G. R. Sharpless and E. V. McCollum, Baltimore.—p. 163.
Studies on Growth: I. Growth Factors in Liver. Claire E. Graham and W. H. Griffith, St. Louis.—p. 179.
Id.: II. Effect of Vitamins B and G on Consumption and Utilization of Food. Claire E. Graham and W. H. Griffith, St. Louis.—p. 195.

Journal of Pediatrics, St. Louis

2: 265-392 (March) 1933

The Pediatrician and Public Health. C. G. Grulee, Chicago.—p. 265.
Meningococcus Meningitis: Plan of Therapy with Criteria for Recognition of Variations in the Course of the Disease. S. S. Lamm, Brooklyn.—p. 273.
*Tubercle Bacilli in Sputum of Children Free from Manifest Pulmonary Tuberculosis, as Determined by Examination of Gastric Sediment. E. Friedman, A. L. Esserman and M. H. Black, Denver.—p. 283.
Blood Picture in Pertussis: Graphic Study. H. E. Thelander, H. G. Henderson and K. Kilgariff, San Francisco.—p. 288.
Whooping Cough Complicated with Intussusception: Report of Case in Three-Month-Old Infant. R. M. Greenthal, Milwaukee.—p. 299.
Herpes Zoster and Disseminated Vesicles (Varicella?). A. E. Fischer, New York.—p. 301.
*Roentgen-Ray Treatment of Some Inflammatory Conditions in Childhood. S. J. Levin, Detroit.—p. 312.
Variations in Reaction to Schick Test. M. B. Hesdorffer, Minneapolis.—p. 318.
Age Incidence and Climatic Variations in Manifestations of So-Called Rheumatic Fever in White Children. C. C. McLean, Birmingham, Ala.—p. 320.
Subacute Bacterial Endocarditis in a Young Child. A. U. Christie and A. H. Heald, San Francisco.—p. 331.
Filtrable Bacteria and Their Significance. A. I. Kendall, Chicago.—p. 336.
Antiques of Pediatric Interest. T. G. H. Drake, Toronto, Canada.—p. 347.

Tubercle Bacilli in Sputum of Children.—Friedman and his associates present a study based on a group of sixty children, fifty-one of whom were admitted as preventorium patients and nine for tuberculosis of joints; two children—representing 3.33 per cent of the entire series, or 4.56 per cent of those with a positive tuberculin reaction—showed tubercle bacilli in their sputum. Of the group, forty-four reacted to tuberculin and only seventeen presented definite roentgenologic evidence of the childhood type of infection. No child in the series gave clinical or roentgenographic evidence of pulmonary infiltration. The two children whose sputum was positive for tubercle bacilli differed in no way from their associates. Each of these two patients gave a history of contact with tuberculosis, was a reactor to tuberculin, had only questionable roentgenographic evidence of the nodular type of infection and was free from cough, expectoration, fever and tendency to colds. The tubercle bacilli could not be detected by examination of a pharyngeal smear obtained after forced coughing, or by means of the direct examination of the homogenized sediment of the gastric washings. They were found only on guinea-pig inoculation of the homogenized sediment of their gastric washings. Tubercle bacilli were not observed in smears of the homogenized gastric washings of five children presenting the adult type of pulmonary tuberculosis whose sputum was repeatedly positive for tubercle bacilli by ordinary methods.

Roentgen Treatment of Inflammatory Conditions in Childhood.—Levin has found roentgen radiation to be a valuable form of therapy in whooping cough, asthma, pneumonia and unresolved pneumonia, acute lymphadenitis, parotitis, otitis media and mastoiditis, cellulitis, erysipelas and pyogenic skin infections of children. No deleterious effect from roentgen treatment has been reported in the literature in cases of this type, when the proper technic and correct doses have been used. It is necessary to emphasize that the value of the x-rays is greater when used early in the disease and that the treatment should be given by a competent therapeutic radiologist. In the author's experience, this form of treatment was especially satisfactory in acute lymphadenitis and early mastoiditis. The use of roentgen therapy in the treatment of inflammatory conditions in childhood is deserving of greater and more widespread trial.

Pennsylvania Medical Journal, Harrisburg

36: 391-482 (March) 1933

Recognition and Treatment of Postoperative Complications. J. F. Erdmann, New York.—p. 391.
Chronic Prostatitis: Foci as Infective Factors. H. Sangree and A. W. Phillips, Philadelphia.—p. 397.
*Newer Concepts in Cancer Treatment Based on Research. R. J. Behan, Pittsburgh.—p. 401.
Pneumonia: Some Remarks on Pneumococcic Counts and Serum Therapy. W. W. G. Maclachlan and J. R. Kenney, Pittsburgh.—p. 408.
Infection of Sphenoid Sinus as a Possible Cause of Abducens Paralysis. K. M. Houser, Philadelphia.—p. 411.
*Study and Treatment of Sterility. P. Titus, Pittsburgh.—p. 414.
Disinfectants. G. R. Lacy, Pittsburgh.—p. 418.
Place of Continuous Venoclysis in Pediatric Treatment. J. Stokes, Jr., Philadelphia.—p. 421.
Botulism: Report of Two Fatal Cases. S. J. Dickey, Harrisburg.—p. 424.

Newer Concepts in Cancer Treatment.—Behan describes twenty different methods of treating cancer, each of which has had its advocate who claimed success by its use and most of which are to be used only in association with surgery and irradiation. Among the single means of treatment of cancer, surgery apparently has the greatest percentage of cures; even though in some cases its primary mortality is high, yet it is in nearly all cases the treatment of choice. Surgery, irradiation, ligation, calcium, and perhaps some of the heavy metals, and local treatment, i. e., desiccation and cauterization, will give the best final results in the treatment of cancer. One should remember that the host to the cancer is the patient and that his resistance is inviolable and must not be reduced but should, if possible, be increased. Peace of mind, quiet, proper food, blood-forming preparations, hope and rest are essential to cure.

Study and Treatment of Sterility.—According to Titus, the successful treatment of relative sterility depends on an accurate and complete diagnosis of its causes, usually multiple. This study is incomplete unless all steps in a certain, systematic investigation of both husband and wife are carried out. Absolute sterility may be attributed usually to a single gross cause, whereas relative sterility will usually be found due to a combination of minor causes which merely lower the "fertility index." Foci of infection and anemia contribute to lowered physical condition or vitality; minor gynecologic lesions, such as endocervicitis and leukorrhea, often play a major part, and these lesions in particular should be corrected by cauterization, conization or operation. Gross lesions, such as retrodisplacements, fibroid tumors or ovarian cysts, contribute to lowered fertility, while tubal occlusion from adnexal disease results in absolute sterility. The physical examination of the husband may show undescended testes, epispadias or hypospadias and is therefore important. The last two anatomic faults possibly can be overcome by the use of condoms with an orifice cut at a corrective point. The Hühner test gives the greatest possible information as to male responsibility. The wife is asked to report to the office an hour or so after coitus. A small amount of spermatic fluid is recovered from the cervix by a narrow suction syringe and examined microscopically under low power magnification. Many active spermatozoa should be seen. The Rubin insufflation of the tubes is not always merely diagnostic

but in certain instances actually proves to be a therapeutic measure. Passage of gas through the tubes at low pressure, such as from 60 to 80 mm. of mercury, indicates normally patent tubes; the other extreme, no flow despite pressure up to 200 or 210 mm. of mercury, is fair evidence of occlusion. Roentgen visualization after injection of iodized oil serves to localize the site of the lesion. Tubes occluded only at their outer ends, as the result of appendicitis in girlhood, may be opened and repaired by a plastic operation if the patient desires it, whereas tubes completely occluded, because of gonorrhea, are obviously beyond help in this respect. A lowered basal metabolic rate in the wife and husband should be corrected by thyroid extract, because underactivity of the thyroid is frequently associated with other glandular disturbances. The judicious administration of thyroid extract to the lacking wife or husband has frequently been followed by pregnancy.

Surgery, Gynecology and Obstetrics, Chicago

56: 591-718 (March) 1933

Partial Pancreatectomy in Chronic Spontaneous Hypoglycemia: Review of Cases of Hypoglycemia Surgically Treated. E. Holman and O. C. Railsback, San Francisco.—p. 591.
Influence of Endometrium on Rabbit Ovary After Hysterectomy. J. V. Sessums, Galveston, Texas, and D. P. Murphy, Philadelphia.—p. 600.
*Relation of Pulmonary Tuberculosis to Anorectal Fistulas: Clinical, Pathologic and Bacteriologic Study. A. J. Chisholm, Denver.—p. 610.
Excretion of Bile Pigments in Experimental Obstructive Jaundice. U. J. Salmon, Chicago.—p. 621.
Pyelometry: Graphic Study of Contractions of Kidney Pelvis. J. L. Jona, Melbourne, Australia.—p. 628.
*Large Pulmonary Air Cysts of Infancy, with Especial Reference to Pathogenesis and Diagnosis. W. E. Anspach and I. J. Wolman, Chicago.—p. 635.
Studies in Physiologic and Pathologic Uterine Musculature at Term. L. Zweibel, Newark, N. J.—p. 646.
*New Muscle Splitting Incision for Resection of Upper Thoracic Sympathetic Ganglions. J. C. White, R. H. Smithwick, A. W. Allen and W. J. Mixter, Boston.—p. 651.
Total Pulmonary Lobectomy: Simple and Effective Two Stage Technic. J. Alexander, Ann Arbor, Mich.—p. 658.
Intravenous Pyelography. O. Dyes, Würzburg, Germany.—p. 674.
Irradiation in a Case of Osteogenic Sarcoma: Recovery. S. Moore, St. Louis.—p. 681.
Physiologic Rest and Preservation of Locomotion. V. L. Hart, Dayton, Ohio.—p. 687.
Ovarian Teratomatous Cysts Occurring in Children. C. P. G. Wakeley, London, England.—p. 692.
Lateral Aberrant Thyroid Glands. S. E. Lawton, Chicago.—p. 696.
Richter's Hernia. R. B. Cattell, Boston.—p. 700.
Muscle Pedicle Repairs of Defects in Parietal Pleura. J. B. Stenbuck, New York.—p. 705.

Pulmonary Tuberculosis and Anorectal Fistulas.—In a bacteriologic and histologic study of tissue in 155 cases, in which 106 patients were free from evidences of pulmonary tuberculosis, eighteen had an inactive arrested fibroid phthisis and thirty-one had an active pulmonary tuberculosis, Chisholm concludes that tubercle bacilli are found in patients with ischiorectal abscesses or anorectal fistulas only if pulmonary tuberculosis is present. He found tubercle bacilli in 77 per cent of the patients with active and in 55 per cent of the patients with inactive (arrested or fibroid) pulmonary tuberculosis, but they were not isolated in the 106 cases in which the patients were free from evidences of pulmonary tuberculosis. These observations suggest a close etiologic relationship between tuberculous ischiorectal abscess or anorectal fistulas and pulmonary tuberculosis. Histologic methods were found unreliable for determining the tuberculous nature of anorectal conditions, except possibly in the presence of marked involvement with typical tubercle formation and the presence of acid fast bacilli, which was not a common observation in the author's series. The presence of giant cells or granulomatous tissue with monocytes and epithelioid cells proved not definitely pathognomonic of tuberculosis in the anorectal region. Acid fast bacilli are not commonly found in sections or smears from tuberculous ischiorectal abscesses or anorectal fistulas with the aid of the microscope, even though they are readily found by reliable culture methods or guinea-pig inoculation.

Pulmonary Air Cysts of Infancy.—Anspach and Wolman report two cases of lung cyst observed in infants: one of the cysts originated as a large chamber filled with lymphangiectatic fluid, which evacuated spontaneously and then "ballooned out" with air, producing a fatal outcome; the other, which was not verified by necropsy, showed a constant roentgenologic appearance over a long period. Fluid cysts in infants, which are usually mistaken for atelectasis, do not have a characteristic roentgenologic appearance, but lung tissue containing air about an area of increased density should arouse suspicion of the presence of a cyst. The diagnosis of balloon cysts depends on successive roentgen and clinical studies and on an understanding of the late stages of pathogenesis. Usually an erroneous diagnosis of pneumothorax has been made. The main roentgenologic diagnostic points of a balloon cyst are the presence of lung tissue at the apex and angles and its absence at the usual hilus region. A collapsed retracted lung shadow, as in simple massive pneumothorax, is not seen on the film. Small air cysts that cannot be differentiated from other air pockets, such as localized pneumothorax, will maintain a more or less constant appearance at a single examination, while the others will show changes and later disappear. On the basis of a study of reported cases and of their own observations, the authors believe that congenital air cysts of the lung contain fluid at birth, and that their postnatal behavior depends principally on mechanical factors.

Incision for Resection of Sympathetic Ganglions.—White and his associates outline a new oblique muscle-splitting incision, which in their hands has avoided much unnecessary bleeding and trauma of the large muscles of the back. The skin incision is made starting a finger's breadth lateral to the spinous process of the seventh cervical vertebra and running obliquely downward and outward over the medial angle of the scapula. This incision need not be more than 8 cm. long. In the case of a bilateral operation, a similar incision is made on the opposite side. The cut is carried down to the deep fascia, and bleeding points are ligated. The incision runs nearly parallel to the fibers of the trapezius, which are now separated by cutting through the fascia and stretching with the fingers. The fibers of the trapezius are then retracted upward and downward, thus exposing the minor rhomboid and levator anguli scapula muscles. These muscles are separated by blunt dissection and then drawn apart by a pair of retractors. When the serratus posterior superior muscle is split, the three upper ribs and the deep longitudinal back muscles are exposed. The attachments of these deep muscles are then separated from the transverse processes corresponding to the first and second ribs and drawn back by a medial retractor. The resulting exposure gives ample room for resection of the proximal portions of any of the three upper ribs. Generally speaking, if one intends to remove a portion of the cervicothoracic sympathetic trunk extending from above the inferior cervical ganglion to below the second thoracic ganglion, it is easier to reach the upper portion of the trunk through the first rib and the lower portion of the trunk through the second rib. However, as a rule, this portion of the trunk can be resected through either rib. Occasionally, in difficult cases, it is best to remove both. After removal of the rib and transverse process, the pleura is separated from the body of the vertebra with blunt dissection. For this purpose, the operator's index finger is the ideal instrument. The pleura must be separated to a depth of 3 cm. and can best be retracted by the use of a brain spoon. At this depth the sympathetic chain is usually seen running longitudinally and adherent to the sides of the vertebral bodies. If it cannot be located in this way it can be found by search for the sympathetic rami, which leave the second intercostal nerve and join the sympathetic trunk about a centimeter deeper down. Once the trunk is located, it should be drawn up on a nerve hook and followed both upward and downward by blunt dissection. Through either a first or second rib resection it is possible to follow the trunk downward and cut it beneath the small second thoracic ganglion. Then with downward traction and by successive cutting of the small sympathetic rami as they leave the trunk, it should be possible to visualize two large ganglions higher up. It is important to have a good exposure in order to avoid injury to the first thoracic nerve. After the large ramus joining the first thoracic ganglion to its spinal nerve is cut, it is not difficult to draw the sympathetic trunk downward to a point where the inferior cervical ganglion can be safely dissected out. The incision is closed tightly unless persistent oozing demands drainage. As the retractors are removed, the muscle edges fall together and require only a few interrupted catgut sutures for perfect apposition. A row of interrupted sutures through the deep fascia of the trapezius, and silk sutures for the skin, complete the operation.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

45: 85-132 (March) 1933

Spirochaeta Pallida or Treponema Pallidum. W. A. Pusey.—p. 85.
"New Phase in Early Syphilis": Some Explanations. E. T. Burke. —p. 87.
*Acute Disseminated Lupus Erythematosus: Five Fatal Cases. A. C. Roxburgh.—p. 95.

Acute Disseminated Lupus Erythematosus.—Roxburgh reports a study of five cases of acute disseminated lupus erythematosus, all fatal. The disease is more common in women than in men and in patients between 20 and 30 years of age. Most cases begin as the chronic localized type of lupus erythematosus. There is no evidence to show why they change to the acute disseminated type. There is no way of telling whether any given case of chronic fixed lupus erythematosus is likely to change to the acute type. Arthritis, arthralgia and muscular pains, albuminuria, a purpuric type of eruption and high temperatures are of evil import if occurring in a case of lupus erythematosus, as they suggest the onset of the fatal stage of this disease. No assistance in diagnosis is forthcoming from the leukocyte count, which is within normal limits, or from blood cultures, which are usually sterile until near the end. After the onset of acute symptoms, death is not likely to be delayed more than from one to four months. The cause of death is streptococcic septicemia. Tuberculosis has nothing to do with this form of the disease.

British Journal of Radiology, London

6: 129-192 (March) 1933

Plastic Surgery in Chronic Radiodermatitis and Radionecrosis. H. D. Gillies and A. H. McIndoe.—p. 132.
Late Roentgen-Ray and Radium Effects: Incidence, Etiology and Medical Treatment. N. S. Finzi.—p. 148.
A Valve-Operated Time Switch. W. R. Gray.—p. 162.
Radiographic Examination of Welds. R. A. Stephen.—p. 165.
Future of Technical Radiology. C. N. Kemp.—p. 166.
A 500-Kilovolt X-Ray Therapy Unit. W. E. Schall.—p. 175.
New Radiographic Technic Employing "Rotalix" Tube. H. Franke. —p. 179.

British Journal of Urology, London

5: 1-112 (March) 1933

*Prevention and Treatment of Urethral Stricture of Inflammatory Origin. J. C. Ainsworth-Davis.—p. 1.
*Carbuncle of Kidney: Report of Two Cases of Bilateral Involvement. F. S. Patch and R. G. Reid.—p. 34.

Urethral Stricture of Inflammatory Origin.—Ainsworth-Davis states that stricture of the urethra is due to imperfectly treated gonorrhea and may take years to develop. Stricture and its complications are of such a serious nature that every effort should be made to ensure early diagnosis and treatment. Unfortunately, symptoms are rarely experienced before the caliber of the urethra has been reduced to about one third of its normal size; i. e., 15 Charrière. Stricture is curable, provided treatment is carried out in the right way, which consists in making it retrace its own footsteps by regular instrumentation: this gradually brings about rupture of the inner layers of fibrous tissue, which are then absorbed during the intervals of treatment. Efficient local anesthesia renders this treatment painless, a great factor in ensuring regular attendance. Late diagnosis and the presence of complications call for the use of a variety of periurethral instruments. Neglected cases and the occurrence of certain severe complications may necessitate operations, sometimes immediate, as a life saving measure. The best procedure is suprapubic cystotomy, any direct operative attack on the stricture being avoided at the time, and an attempt being made by instrumentation at a later date. The author summarizes the treatment of certain preinstrumental and postinstrumental complications of stricture, such as urethral discharge, urethral flakes, prostatitis, vesiculitis, epididymitis, periurethral abscess, fistula, false passage, extravasation, hemorrhage, "catheter" fever, retention of urine, and the breaking off of a guide.

Carbuncle of Kidney.—Patch and Reid report two fatal cases of bilateral renal carbuncle, both proved by necropsy. One of the cases showed a typical carbuncle of the liver. They also report two cases of presumable renal carbuncle with perinephric abscess. Both patients recovered following drainage of the abscess. The value of the pyelogram in arriving at a diagnosis has been demonstrated in the two cases of presumed renal carbuncle. The authors' two cases emphasize the advantages of early diagnosis and conservative therapy. In all obscure cases, when even slight signs and symptoms suggest urinary tract involvement, a full urologic study should be made.

British Medical Journal, London

1: 399-442 (March 11) 1933

Midwifery in the Home. T. W. Eden.—p. 399.
Hepatomegaly with Persistent Ketonuria in a Child: Probably a Case of Von Gierke's "Glycogen Accumulation Disease" with Functional Recovery. C. Worster-Drought, with remarks in collaboration with F. P. Weber.—p. 403.
Acute Obstruction of Colon. J. P. Lockhart-Mummery.—p. 405.
*Quantitative Modification of Bendien Reaction in Serodiagnosis of Malignancy. E. C. Lowe.—p. 407.
Typhoid Paratyphoid in Institution Sewage. G. W. T. H. Fleming. —p. 412.

Modified Bendien Reaction in Cancer.—Lowe describes a quantitative modification of the Bendien test for cancer. He employed this method in 362 cases presenting various degrees of malignancy, ranging from the most advanced and obvious to the earliest and clinically uncertain type. The primary tube reaction showed it to be insufficient for the diagnosis of a malignant condition. The triple test (the author's modification) must be employed and will then differentiate malignant from nonmalignant conditions in at least 95 per cent of cases. The clinical diagnosis and the degree of positiveness shown by the test closely correspond. Postoperative cases of cancer, or those receiving radium, roentgen, or other forms of treatment, may be followed up by means of this test, and clinical information may thereby be obtained regarding prognosis and treatment. The author refers to cases in which satisfactory clinical improvement and apparent cure is associated with the continued presence of a normal or nonmalignant serum reaction. In some cases the serum reaction has foretold a recurrence months before clinical observations have confirmed it. Among normal and clinical nonmalignant conditions a certain percentage of abnormal reactions occur, suggesting the possibility of recognizing in such cases a precancerous tendency. The test is delicate and reliable, more satisfactory as a laboratory technic than any other at present available, and should be of value as a clinical aid to the diagnosis and prognosis of malignant conditions, especially in early cases.

Journal of Pathology and Bacteriology, Edinburgh

36: 201-332 (March) 1933

Examination of Relationship Between Streptococcus Antitoxin and Antistreptolysin. E. W. Todd, L. J. M. Laurent and N. G. Hill.—p. 201.
Regulation of Marrow Activity: Experiments on Blood Transfusion and on Influence of Atmospheres Rich in Oxygen. A. E. Boycott and C. L. Oakley.—p. 205.
Influences of Breathing Carbon Monoxide and Oxygen at High Percentages for Prolonged Periods on Development of Tar Cancer in Mice. J. A. Campbell.—p. 243.
Peculiar Form of Muscular Hyperplasia of Intima of Small Arteries. M. J. Stewart.—p. 249.
Experimental Skin Tumors in Rat Produced by Tar. A. F. Watson. —p. 251.
Changes in Liver in Fatal Case of Epidemic "Catarrhal" Jaundice. J. F. Gaskell.—p. 257.
*Separation from Clostridium Welchii of Variants Which Differ in Toxicity and Antigenic Structure. C. A. McGaughey.—p. 263.
Study of Gliomas by Method of Tissue Culture. Dorothy S. Russell and J. O. W. Bland.—p. 273.
Dissociation in Certain Mycobacteria, with Especial Reference to Type Stability. May H. Christison.—p. 285.
Classification of Dysentery-Coli Bacteriophages: I. Differentiation by Bail's Methods of Phages Lysing a Typical Bacillus Coli Strain. F. M. Burnet and Margot McKie.—p. 299.
Classification of Dysentery-Coli Bacteriophages: II. Serologic Classification of Coli-Dysentery Phages. F. M. Burnet.—p. 307.
Influence of Heat on Antigenic Properties of Diphtheria and Tetanus Formol Toxoids. A. J. Van Den Hoven Van Genderen.—p. 319.

Variants of Clostridium Welchii.—McGaughey isolated two variants from an authentic strain of Clostridium welchii, by selection and repeated subculture of colonies, which have remained stable during a period of observation of about four years. The variants differed from the parent strain and from one another in form of colony, growth in broth, size and shape of individual bacilli, sporulation and formation of capsules. They resembled the parent strain and one another in fermentation activity, giving an acrolein test, liquefying gelatin and

producing a stormy clot in milk. At one stage one of the variants appeared to be incapable of producing toxin but later produced small amounts of toxin in culture. The other variant produced from three to six times as much toxin as the parent strain. The production of hemolysin in culture followed exactly changes in the production of toxin. By agglutination tests the antigens of both variants differed completely from the parent strain. The antigens of the variants were closely related and perhaps identical. Mucoid types of the parent strain and of both variants have been noted. The importance of these results in the production of Clostridium welchii toxin and their possible application to the study of Clostridium welchii infection and immunity is suggested.

Lancet, London

1: 509-562 (March 11) 1933

*Treatment of Enlarged Tonsils in Children. T. B. Layton.—p. 509.
Thoracic Surgery. H. M. Davies.—p. 511.
Advance in Surgery of Cleft Palate. D. Levi.—p. 515.
Dysinsulinism: Case. W. J. Griffiths and O. L. V. de Wesselow, with comments by P. J. Cammidge and E. P. Poulton.—p. 519.
*Sedimentation Rate and Ultimate Prognosis in Tuberculosis: Investigation into After-History of Five Hundred Cases. R. R. Trail.—p. 522.
*Streptococcic Meningitis: Case with Recovery. J. K. Rennie and W. S. Craig.—p. 524.

Treatment of Enlarged Tonsils in Children.—Layton doesn't believe that there is as yet any local treatment of the tonsils that can compare with operative surgery. Size is no indication for removing tonsils. The great indication is the history of recurring follicular tonsillitis, and this is more important than any appearance of the tonsil. Children need lymphoid tissue in their respiratory tracts, and they do not get follicular tonsillitis in the earlier years of life. Therefore, operations on a child up to 5, 6, 7 and 8 years of age should not be done unless it cannot possibly be helped and the need for it can be proved. After that age the operative treatment of the tonsils is a practical problem, but the author thinks that the best results come after the age of 12 rather than before.

Prognosis in Tuberculosis.—In his follow-up study of 500 consecutive cases of pulmonary tuberculosis extending over a period of six years, Trail found that considerable value must be given to the sedimentation rate in assessing ultimate prognosis. It is usual to assess such prognosis on physical signs, temperature, pulse, sputum tests and the patient's fitness for exercise judged on the results of "exercise tests." It is well known how such criteria can lead the physician astray, but the sedimentation rate may be a decided help, since the prognosis becomes increasingly grave with the higher rates of sedimentation. If a patient enters the sanatorium with a figure of more than 20 and leaves with a figure of more than 10, it means a grave prognosis; this applies to all patients presenting clinical tuberculosis, "open" and "closed," and, while the gravity increases in positive tuberculosis and, in particular, in those who remain so in spite of treatment, it appears that it is better for the patient to remain positive and secure a fall in the sedimentation rate to less than 10 than to become negative with a discharge figure of more than 10. Artificial pneumothorax reduces the sedimentation rate: the average fall in twenty cases was from 31 per cent to 14 per cent. Rest is the best of all treatments. Once the patient has been assessed, the amount of rest required, the capacity for increasing movement in "graduated rest," and the fitness for the return to work ought to be based as much on the movements of his sedimentation rate as on his pulse, temperature, "exercise tests," and sputum results. Both immediate results and after-results may be benefited and the physician may be distinctly aided in his difficulty of the evaluation of prognosis.

Streptococcic Meningitis.—Rennie and Craig report a case of streptococcic meningitis and state that a striking feature of the more recent cases, and one well exemplified in their case, is the rapidity of progress, once improvement is established. How far this is due to the use of the various serums is difficult to say, but it seems more than likely that they exercise an influence on the course of the disease. Lumbar puncture alone or in combination with some other method is the procedure most generally adopted. Operative measures—e. g., mastoidectomy and labyrinthotomy—have been employed, but only when the source of the infection lay in the ear. When a block in the spinal canal has taken place and little fluid has been obtained by lumbar puncture, cisternal puncture has been resorted to. In several cases antiseptics were used to wash out the spinal canal: acriflavine hydrochloride and a 1 per cent solution of mercurochrome. More recently, serum has been administered in addition to any other procedure. Of the serums employed, the antimeningococcus serum has been used most frequently in the first instance before a report on the cerebrospinal fluid has been obtained, and in one case (Ebert) recovery followed the use of this serum alone. Once the true state of affairs has been recognized polyvalent antistreptococcus serum has been extensvely used, and results have certainly been better since its introduction. In streptococcus antitoxin (scarlatina) globulins, which has more recently become available, one has probably a much more potent agent. The authors believe that the intramuscular administration of 20 cc. of scarlatinal serum was responsible for their patient's rapid recovery, although large doses of polyvalent serum were previously administered.

Medical Journal of Australia, Sydney

1: 299-330 (March 11) 1933

General Anesthesia in Oral Surgery. G. R. Troup.—p. 299.
Choice of Anesthetic in Oral Surgery. V. A. Read.—p. 301.
Bacteriologic Investigation of a Series of Tonsils Removed by Operation. W. C. Sawers and F. R. Barrett.—p. 304.
Diagnosis of Diseases of Heart and Aorta: Radiologic Study. F. J. Gwynne.—p. 307.

South African Medical Journal, Cape Town

7: 133-168 (March 11) 1933

Hereditary Syphilis: Manifestations of Hereditary Syphilis in Children. C. L. Leipoldt.—p. 135.
Id.: Syphilitic Manifestations of Urogenital Disease. K. Frater.—p. 136.
Id.: Ophthalmologic Aspect. A. W. S. Sichel.—p. 138.
Id.: Dermatologic Venereal Aspect. F. Krone.—p. 142.
Id.: Syphilitic Manifestations in Ear, Nose and Throat. K. Bremer.—p. 147.
Id.: Neurosyphilis. F. H. Kooy.—p. 149.
Puerperal Sepsis. Ella Britten.—p. 152.

Revue Française de Pédiatrie, Paris

9: 153-272 (No. 2) 1933

*Aplastic Infantile Anemias. L. Morquio and A. Volpe.—p. 153.
*Metabolism of Iron in Breast-Fed Infants During First Year of Existence. A. Wallgren.—p. 196.
Clinical and Anatomic Study of Congenital Laryngeal Cysts in the New-Born. Mme. G. P. Bellocq and R. Pernot.—p. 236.
Lymphoid Leukemia in Infant Splenectomized for Hemogenia. E. Schneegans.—p. 256.

Aplastic Infantile Anemias.—Morquio and Volpe report eight cases of infantile aplastic anemia which were confirmed by necropsy. This hemopathy is characterized clinically by a grave anemia appearing insidiously under the symptoms of asthenia, loss of appetite, slight loss of weight and rapidly increasing pallor. It is usually accompanied by purpuric manifestations varying from petechial eruptions to intense, repeated eruptions having the aspect of a severe primary purpura haemorrhagica and diphtheroid necroses. These were seen in only one of the authors' cases in the form of a Vincent's angina but have frequently been reported in adults. Hematologically this anemia is characterized by an erythroleukothrombopenia. There is an absolute absence of erythroblasts of all kinds, and all signs of erythrocytic regeneration are completely lacking. The leukopenia is characterized by an absolute and relative lymphocytosis and a granulocytopenia which may be marked, showing an absence of myeloid reaction. There is no decrease of globular resistance and there are no signs of hyperhemolysis. A positive diagnosis of aplastic anemia demands the absence of phenomena of hyperhemolysis and the confirmation of a myeloid aplasia as the cause of the aregenerative blood formation. This is obtained by medullary biopsy, by tibial or sternal trepanation which shows, macroscopically and microscopically, atrophy of the bone marrow and absence of all hematopoietic activity. Differential diagnosis involves primarily certain cases of aleukemic lympholeukosis and preleukemic or atypical leukemic states in which the clinical manifestations of anemia and the hematologic manifestations of erythropenia dominate while the leukocytosis is nearly normal and the lymphocytosis presents only rare embryonic cells of the lymphoblastic type. There is no doubt about the diagnosis if the evolution is definitely toward the leukemic formula; if it is not, the diagnosis can be made only by

medullary biopsy or necropsy. Clinically, this cryptogenic anemia, once it is established, progresses rapidly and is not arrested by hepatotherapy, transfusions, or roentgen therapy in stimulating doses. In six of the cases of infantile aplastic anemia seen by the authors, the course of the disease was acute; the period between the first perceptible signs and death varied between two and three months. Only one case had a slow evolution lasting eight months.

Metabolism of Iron in Breast-Fed Infants.—Wallgren conducted twenty-one experiments on the metabolism of iron in five nurslings between the ages of 3 weeks and 11 months. The experiments lasted from seven to ten days each. During this time the total quantity of iron ingested in the form of breast milk and in weaning fluids was determined and quantitative determinations of the iron excreted in the urine and feces were made. In three of the infants the experiments showed a positive iron balance, analogous to that observed by Langstein and Edelstein and which may be considered as the normal balance of children born at term. In one child, also born at term, the iron balance behaved as in the experiments of Lichtenstein on premature infants; that is, it was negative in the first five months but without the production of a decrease in hemoglobin, such as one observes in the anemias of premature infants. In the fifth child, the balance during the first five months was at times negative and at times positive. Although the quantity of iron contained in breast milk averages only 0.642 mg. for 1,000 Gm., it suffices to cover the needs of the infantile organism for iron from the exterior, provided the value of the hemoglobin stays within normal limits. As it may be supposed that this small daily supply of iron is insufficient to cover the total requirements of iron for reconstruction of the blood of the infant and so on, it is probable that the organism is capable of utilizing part of the iron found in its organs at the moment of birth and liberated by the destruction of the erythrocytes. On the other hand, the larger quantities of iron excreted in the feces during the first months may show that a portion of the iron existing in the organs at the moment of birth is eliminated as a waste product, useless to the organism.

Policlinico, Rome

40: 843-882 (May 29) 1933. Practical Section

*Practical Value of New Test of Hepatic Function. G. Migneco.—p. 845.
Special Serologic and Clinical Behavior of Syphilis. F. Sebastiani.—p. 851.
Free Fibromyoma in Peritoneal Cavity. A. Cester.—p. 855.
Intramuscular Lipoma: Case. P. Benini.—p. 858.

Practical Value of New Test of Hepatic Function.—Migneco studied the value of the modification of the dextrose tolerance test of Althausen and his collaborators as an index of metabolic activity of the liver. The test consists of determining the amount of blood sugar after twelve hours of fasting, followed by subcutaneous injection of 20 units of insulin. Twenty minutes later 50 Gm. of dextrose in 500 cc. of water is administered orally, followed by 1 liter of water. The determination of the blood sugar is repeated one-half hour, one hour, two hours and three hours from the ingestion of the dextrose. They observed in normal subjects a glycemic curve with an ascending stage during the first hour (35 per cent increase), followed by a gradual decrease until after three hours the curve had reached its initial stage. Patients with hepatic diseases showed either a hypoglycemic type of curve with an uninterrupted drop of the glycemic rate during the complete test or a hyperhypoglycemic type in which the drop was preceded by an elevated and permanent hyperglycemic phase. They concluded that terminal hypoglycemia, under the conditions of the test, should show a hepatic dysfunction and that the dividing line between normal and pathologic results should be about 70 mg. of dextrose in 100 cc. of serum. The author administered this test to thirty-four patients, of whom nine were normal and thirteen suffered from hepatic diseases, eight from nonhepatic diseases and four from diabetes. He reports on six normal persons and six with diffuse hepatic lesions of various types. Roentgenograms of the six normal persons before the test showed no disturbances, hepatic or otherwise. Yet three of the patients showed hepatic curves while the glycemic rate fell to 67, 46 and 35 mg., respectively. In all cases the glycemia fell to 50 mg. In one, disturbances due to hypoglycemia arose requiring an immediate operation. The test offered disconcerting results in the six patients with hepatic lesions. The glycemic rate of one dropped to 53 mg., of another to 43 mg. and of a third to 32 mg. Two patients with the most serious hepatic lesions in the group gave negative results, their curves falling to 31 and 22 mg. Since normal persons registered a hepatic type of curve while patients with hepatic diseases showed a normal curve, the author concludes that this test has little merit.

Archiv für klinische Chirurgie, Berlin

175: 181-356 (May 22) 1933

Anterior Thoracic Plastic Operation on Esophagus. E. Ruge and A. Püschel.—p. 181.
Relation of Chronic Gastric Ulcer to Gastric Carcinoma. A. Rothmann.—p. 201.
Experimental and Clinical Studies of Tone of Striated Muscles in Relation to Operative Procedures on Sympathetic Nervous System in Spastic Paralysis. H. Kasumov.—p. 216.
Pyelogram in Kidney Tumors. K. Boshamer.—p. 238.
Resection of Shoulder Joint for Tuberculosis. H. Meyer-Burgdorff.—p. 250.
*Lipoid Infiltration of Gallbladder. J. Berendes.—p. 266.
Case of Healed Osteomyelitis of Sternum. K. Kamniker.—p. 283.
Healing of Brain Wounds After Electrocoagulation. F. M. Lissiza and S. J. Minkin.—p. 288.
*Leukocytic Picture in Topical Diagnosis. I. A. Hayes, A. Spizin and P. Oransky.—p. 300.
Endometroid Heterotopias. Z. W. Mankin.—p. 314.
Plastic Hemostatic Substance for Operations on Skull. B. Fuchs.—p. 335.
End Stages of Köhler's Disease in Child's Navicular Bone of the Foot. H. Dieterich.—p. 340.
Treatment of Skin Carcinoma with Carbon Dioxide Snow. A. A. Epstein.—p. 344.
Lymphadenoma of Rectum. A. A. Epstein.—p. 351.

Lipoid Infiltration of Gallbladder.—Berendes submits a histologic study of 127 so-called strawberry gallbladders found among 2,492 necropsies performed in the Pathologic-Anatomic Institute of the University of Freiburg between 1928 and 1932. In a previous work, Ludwig Aschoff stipulated that the small yellowish elevations seen on the gallbladder mucosa were not fat accumulations but an especial form of storing of fat by the endothelial cells of the lymphatic vessels. Chemical analysis showed these to be a mixture of cholesterol ester and fatty acids. They were frequently found in entirely normal gallbladders. The bile in such gallbladders frequently contained small specks which on polaroscopic examination showed the double refraction characteristic of cholesterol crystals and, when reduced to a liquid state, the characteristic maltese cross configuration of cholesterol plaques. By means of the sudan stain the author demonstrated that the lipoid infiltration was limited principally to the endothelial cells of the lymph vessels of the submucous layer. The fact that the richest deposits of cholesterol ester occur in the summit of the projecting mucous villi and that the strawberry gallbladder is frequently associated with bile stasis suggests that the lipoid infiltration here is the result of absorption of cholesterol from the bile rather than of excretion into the bile. A causal relationship is suggested between cholesterol infiltration and cholesterol stone formation. Mucous villi, laden with fat and projecting into a bile saturated with cholesterol, may became detached from their slender pedicles and float as free bodies in the bile. They may serve as nuclei for the formation of gallstones. Addition of desquamated epithelium of the gallbladder to bile in a test tube experiment was shown to augment the precipitation of cholesterol from it. The end product of cholesterol precipitation in stasis of the gallbladder is radial cholesterol stone. Attention is called to the report of Judd and Mentzer in which it is stated that 99 per cent of stones found in instances of strawberry gallbladders seen by them were pure cholesterol stones and that in 30 per cent these were solitary cholesterol stones. In the author's series there were only two instances of mixed stones, while the remaining seven were solitary radial cholesterol stones. The following conclusions were drawn: 1. Storing of lipoids in the wall of the gallbladder is the result of resorption. 2. There is no causal relationship between storing of lipoids and formation of gallstones. 3. Disturbance of the cholesterol metabolism of the entire organism is probably not the cause of lipoid infiltration of the wall of the gallbladder. 4. Storage of lipoids is the result of the process of absorption of increased cholesterol ester content in the gallbladder bile. The slowing of the lymph current appears to have an influence on the process.

Leukocytic Picture in Topical Diagnosis.—On the basis of 15,000 blood counts after the method of Schilling, Hayes and his co-workers draw the following conclusions: 1. The shift to the left does not possess the prognostic value assigned to it by its author. Diseases other than those of the gastro-intestinal tract and of the pleura do not display this phenomenon. When the shift to the left does take place in these diseases, it is due to some gastro-intestinal disturbance which can be easily eliminated. 2. The variable size of rods (nuclei) and of juvenile forms is not an accidental but a constant phenomenon and enables one to make a topical diagnosis. 3. The phenomenon of paragglutination is of considerable diagnostic and prognostic significance. It occurs in local as well as in general infections.

Beiträge zur klinischen Chirurgie, Berlin

157: 449-560 (May 17) 1933

Deforming Arthritis of Cervical Vertebrae. R. Kienböck.—p. 449.
Roentgenologic Appearance of Pyloric Hypertrophy and of Prepyloric Contractions in Chronic Gastritis and in Ulcer of the Stomach. F. Serck-Hanssen.—p. 464.
*Contribution to Etiology of Chronic Duodenal Stenosis and of Megaduodenum. E. Kraas.—p. 489.
Hip Dislocations Result of Lack of Development of Acetabulum. B. Simons.—p. 505.
Juvenile Deforming Osteochondritis of Elbow. O. Winterstein.—p. 527.
Large Hernia of Bladder. M. Makkas.—p. 536.
*New Contributions to Operative Treatment of Acute Pancreatitis. G. Hartlieb.—p. 539.

Chronic Duodenal Stenosis and Megaduodenum.—Kraas reports seven cases of megaduodenum observed in Schmieden's clinic. He accepts Melchior's and Duval's definition of megaduodenum as an enlargement of the duodenum without recognizable cause, the condition being taken as a congenital anomaly. Another type of chronic duodenal stasis exists; namely, that due to chronic arteriomesenteric obstruction. It may be produced by disorders of the neighboring organs with secondary stenosis of the descending portion of the duodenum or of the duodenojejunal flexure. Enteroptosis, especially of the transverse colon, is considered by some as an important etiologic cause. The symptoms in megaduodenum may be entirely absent. When present, they are characterized by long duration, a sense of fulness in the right upper quadrant of the abdomen and frequently severe, nightly colics in the same region. The clinical picture suggests an ulcer. Roentgen study is the most important method of recognition of the condition, which is frequently associated with a diverticulum or an ulcer. The diverticulum is regarded as a congenital anomaly rather than the result of stenosis. Duodenojejunostomy is considered the operation of choice in the cases in which motor disturbances are prominent. When the presence of an ulcer suggests the advisability of partial gastric resection, a Billroth II operation with the Y anastomosis of Roux is recommended because it is capable of preventing regurgitation of gastric contents into the duodenal stump.

Operative Treatment of Acute Pancreatitis.—Hartlieb is opposed to the prevailing idea of early intervention in acute hemorrhagic pancreatitis. He cites twenty-three cases from the Nordmann clinic in which the operation consisted of the removal of the gallbladder and drainage of the common bile duct. Eleven of the patients got well and twelve died. Two patients were too sick to be operated on. They went on to formation of abscesses which were later drained and they recovered eventually. In a later group of seven patients treated conservatively, five got well and two died. In contradistinction to his own views, the review of recent works by several authors indicates a preference for the earliest possible operative intervention. Unanimity of opinion exists as to the importance of gallstone disease in the etiology of acute pancreatic necrosis. The diagnosis is not particularly difficult. The most valuable test is the serum diastase determination of Wohlgemuth. An increase of the blood sugar is suggestive. Guleke found glycosuria in 10 per cent of his cases. The author quotes instances to show that early operative intervention is not always capable of arresting the destructive process in the pancreas. Effusion into the peritoneal cavity is not as dangerous as was formerly believed, because it is always sterile in the beginning. The introduction of drains, however, converts a sterile process into a suppurating one. All the authors reviewed were in favor of the earliest possible intervention.

Deutsche medizinische Wochenschrift, Leipzig

59: 755-796 (May 19) 1933

Behavior of Peripheral Circulation in White and Red Hypertension. M. Nordmann.—p. 755.
Experiences with Nitrogen Monoxide Anesthesia in Obstetrics and Gynecology. C. Margraf.—p. 757.
*Late Sequelae in Stomach and Intestine After Bacillary Dysentery. A. Ohly.—p. 760.
Case of Hypophyseal Diabetes Insipidus with Arthritis of Left Wrist and Ankle Joints. H. Hennes.—p. 762.
*Nonsurgical Mobilization of Gonorrheal Ankylosis of Knee Joint. Mosenthal.—p. 763.
Experiments on Etiology of Haff Disease. J. Fortner, K. Otto and B. F. von Bülow.—p. 766.
Is Chronic Intermittent Treatment of Syphilis Still Justified? F. Lesser.—p. 767.
*Rare Blood Status: Hyperproteinemia in Myeloma. M. Bönniger.—p. 770.
Examination of Function of Kidney by Alkali Tolerance Test. Mia von Buengner.—p. 771.
Giant Suppositories as Substitute for Clysters. M. Lewin.—p. 772.

Sequelae After Bacillary Dysentery.—Ohly points out that bacillary dysentery is not a uniform disease, etiologically (many different dysentery bacilli) or anatomically (varied and changing symptoms). The same applies also to the late sequelae of the disease. The symptomatology is mainly determined by the localization of the disorder. For the recognition of post-dysenteric disorders, the anamnesis is of great importance. If it reveals that the patient has had sanguineous-mucous diarrhea with tenesmus and fever, he most likely has had a dysenteric disorder. A large percentage of the late sequelae have the aspects of chronic relapsing gastro-enteritis or of gastro-enterocolitis. The colonic symptoms generally predominate. The diarrheal form is mostly painless, but the spastic form is often extremely painful. To insure a correct diagnosis the author recommends careful examination of the feces, roentgenoscopy and endoscopic examination. The differential diagnosis of dysenteric enterocolitis is frequently difficult, because the disorder often simulates such conditions as gastroduodenal ulcer, cholecystopathy, appendicitis and even pancreatic disorders. Moreover, it is possible that one of these disturbances develops on the basis of a chronic dysenteric gastro-enterocolitis. The postdysenteric colitides are frequently complicated by anal eczema. The impairment of the gastro-intestinal mucous membrane is much more severe in the postdysenteric than in other forms of gastro-intestinal disorders, which makes the prognosis comparatively unfavorable. Relapses are frequent, particularly following a carelessness in the diet or an exposure to cold. Food rich in cellulose should not be eaten in large quantities. Fresh yeast bread, food with high fat content and cold drinks are likewise inadvisable. In cases in which carbohydrate fermentation and diarrhea predominate, it is helpful to let the patient fast for a day and to allow him only hot tea. Carbohydrates should be avoided for about a week, during which time the diet should consist primarily of proteins. In patients with achylia, medicinal therapy in the form of hydrochloric acid, pepsin and other preparations is advisable. The application of heat in various forms is also helpful. Because the long duration of the disturbance may lead the patients to develop carcinophobia or other phobias, psychotherapy should not be neglected.

Nonsurgical Treatment of Gonorrheal Ankylosis of Knee Joint.—Mosenthal admits that bony ankylosis requires surgical interventions but shows that fibrous ankylosis, the most frequent form of gonorrheal ankylosis, can be treated nonsurgically. Roentgenoscopy is the best help in determining whether surgical or nonsurgical interventions should be employed, and it is essential to exclude the existence of an infection. To do this the author recommends agglutination tests with the most frequently occurring pathogenic organisms, repeated leukocyte counts, determination of the sedimentation speed of the erythrocytes, mechanical irritation and eventually irritating irradiations. In patients who have had gonorrhea it is essential that the disease be not only completely cured but that there be an interval of at least two years between the cure and the intervention. The author employed nonsurgical mobilization in three cases, in all of which it was successful. In two of the patients the ankylosis had existed for two and three years, respectively. The third patient, whose clinical history is described, had had a stiff knee for seven years. Since the roentgenogram revealed no bony bridges but only proliferations on the articular surfaces, the author decided to

attempt mobilization under deep anesthesia. During an attempt to mobilize the joint, the patella made a cracking noise, and after this it was no longer difficult to attain a 90 degree movement of the knee. The joint was kept in the flexed position for eight days, and after that an intensive movement therapy was begun. The patient is now able to work, is free from pain, and is entirely satisfied with the results. Even a plastic operation would hardly give better results. The author points out that, in two cases of beginning articular complications, he was able to obtain rapid improvement by treatment with roentgen rays (inflammation dose). After a few days, articular movements could be begun and a stiffening of the joints thus prevented.

Hyperproteinemia in Myeloma.—Bönniger relates the history of a man, aged 52, who complained of general debility and of pains in the hips and legs. The patient was extremely pale. The hemoglobin content of the blood was reduced to half the normal value, and the volume of the blood corpuscles was correspondingly decreased. The number of erythrocytes could not be determined because the blood coagulated as soon as it came in contact with Hayem's solution. The blood count could be made in physiologic solution of sodium chloride, and the numbers corresponded to the hemoglobin content (orthochromic anemia). When a drop of blood was put into a 25 per cent solution of corrosive mercuric chloride, coagulation took place immediately, a drop of serum solidifying at once and sinking to the bottom, whereas normal serum forms at first a homogeneous cloudiness and later precipitates. The patient's serum showed still other peculiarities; it was syrupy and was sticky like acacia, and the blood corpuscles, its own as well as foreign ones, had an agglutinative tendency. The sedimentation speed of the erythrocytes was highly accelerated. Bleeding time, coagulation time and fibrinogen content were normal, but the blood clot showed only a slight tendency to retract. It seemed probable that the peculiar behavior of the blood was connected with the protein bodies of the blood plasma. Tests revealed a considerable increase in the specific gravity of the plasma and of the serum, and the refractometer value of the protein was 13 per cent, compared to 8 per cent in normal persons. The nitrogen value was correspondingly increased, and the viscosity could not be measured with the Hess instrument, because the instrument is not standardized for such high protein values. Roentgenoscopy had revealed the typical aspects of myeloma. The changes were most severe in the femurs and the hip bones. The author points out that other reports on myeloma mention changes in the blood status, such as an increase in the euglobulin, but that only two state that it was impossible to count the erythrocytes. However, these authors do not mention whether they employed Hayem's solution. At any rate, it is noteworthy that the coagulation set in only during the erythrocyte count, whereas other tests, such as the determination of the hemoglobin and the white blood count, could be made. Another worker mentions coagulation at the withdrawal of blood for the Wassermann test, whereas other blood tests apparently could be made without difficulty. The author concludes that the blood condition in myeloma probably varies in different cases, but he thinks that, if the described phenomenon is observed, the possibility of a myeloma should be considered.

Deutsche Zeitschrift für Nervenheilkunde, Berlin

131: 125-204 (May 9) 1933

Pathologic Anatomy and Pathogenesis of Multiple Sclerosis. M. S. Margulis.—p. 125.
*Symptomatology and Diagnosis of Nonotogenic Abscesses of Cerebellum and Cause of Sudden Death. K. Stern.—p. 144.
*Rare Complication of Suppurative Mastoiditis: Compression of Medulla Oblongata as Result of Osteomyelitic Destruction of Atlas. R. Lorenzo and R. J. Delatienda.—p. 163.
Electrodiagnosis: Influence of Procaine Hydrochloride on Electric Reaction, Particularly Chronaxia of Muscle and Its Nerve. H. Siems.—p. 169.
Id.: Peculiar Case of Persistence of Contraction and Its Modification by Procaine Hydrochloride. H. Siems.—p. 181.
Electrical Irritability of Sensory Cutaneous Nerves in Percutaneous and Intracutaneous Tests. S. Heinrichs.—p. 191.
*Reduction of Sedimentation Speed of Erythrocytes in Neurotic and Psychopathic Persons. Liselotte Range.—p. 198.

Abscesses of Cerebellum.—The anamnesis of Stern's first patient reveals that fifteen years previously he had an osteomyelitis of the right arm, surgically treated by removal of the head of the humerus. The patient also stated that for many years he had been hard of hearing in the right ear. Following the first operation, he suffered from severe headaches, recurring every summer and radiating toward the occiput, where they produced a feeling of pressure. In the past they lasted two weeks, but because this year they lasted longer and recurred after an interval of one month, the patient asked for medical advice. The patient's condition grew rapidly worse and he died about two weeks later, twelve hours after a spinal puncture. The necropsy revealed, in the right cerebropontile angle, suppurative meningitic deposits, which also covered parts of the right cerebellar hemisphere. The cerebellum was swollen and was pressed tightly into the large occipital foramen. In the lateral portion of the cerebellum there was an abscess cavity the size of a cherry and filled with pus. The author discusses the symptomatology of cerebellar abscesses and the peculiar aspects of this case. Whether the cerebellar abscess originated in the osteomyelitis cannot be definitely decided. There is also the possibility that the two conditions had a common origin. The hypertrophic pharyngeal ring and the bad condition of the tonsils make it appear possible. At any rate, the case shows that a long time may pass between the primary infection and the manifestation of a cerebellar abscess. The second case described is that of a man with a psychopathic predisposition. Six months before his death he showed psychic changes and complained of headaches in the occipital region. An examination made two months before the fatal outcome revealed no organic symptoms, except a nystagmus toward the right side. The author emphasizes the significance of nystagmus as a sign of cerebellar abscess. The symptoms in this patient also became considerably exacerbated following a spinal puncture, and he died a few days later. The postmortem examination revealed a cerebellar abscess. The author thinks that the sudden death of both patients was the result of spinal puncture, for in both patients the cerebellum was swollen and was pressed into the occipital foramen. Under these conditions, a sudden movement may easily cause an impairment of the oblongata and result in respiratory paralysis. Consequently the author warns against spinal puncture whenever there is a possibility of cerebellar abscess.

Complication of Suppurative Mastoiditis.—Lorenzo and Delatienda reject the theory that mastoiditis is always a secondary localization of a process in the middle ear. The case reported by them showed from the beginning primary symptoms at the focus of the disease. On the basis of their clinical and anatomic observations they conclude that the disorder was a primary osteomyelitic mastoiditis with manifestations corresponding to Bezold's mastoiditis. The suppuration spread into the deeper layers of the neck and into the lateral portions of the pharynx. The osteomyelitis involved the left occipital condyle and the epistropheus and the atlas, and the intravertebral ligaments were also destroyed. An incomplete Brown-Séquard syndrome developed as the result of extradural compression of the first cervical segment. Death was caused by compression of the medulla oblongata resulting from the dislocation of the occiput and of the atlas against the epistropheus. The authors base their contention that the process was primary on the following factors: lack of a preceding disturbance of the middle ear, sudden beginning of the osteomyelitic processes, normal condition of the middle ear and a special affinity of the pathogenic organisms for bony tissue, which was exemplified by the osteomyelitic processes in the cervical spinal cord.

Reduction of Sedimentation Rate in Neurotic Persons.—In 157 patients with functional neuroses or with psychopathy, Range observed a retardation of the sedimentation speed of the erythrocytes from 1 to 3.5 mm. per hour. Women and men were represented in this material in the ratio of 1:2. From the study of twenty-two patients the author gained the impression that the sedimentation speed of erythrocytes is largely dependent on the fibrinogen and on the changes in the plasma protein. Low sedimentation speed of the erythrocytes was always accompanied by abnormally low fibrinogen values, whereas control tests on sixteen persons with increased sedimentation speed of the erythrocytes revealed high fibrinogen values. The tests seem to indicate also that there is a relationship between sedimentation speed and increase in the globulin content. Low globulin values always were accompanied by retardation of the sedimentation, and this decrease of the globulin was always present in neurotic patients with decreased sedimentation speed.

Zeitschrift für Kinderheilkunde, Berlin

55: 1-136 (May 15) 1933

*Results of Splenectomy in Gaucher's Disease (Familial Splenic Anemia). O. Ullrich.—p. 1.
Chemical Examination of Spleen in Gaucher's Disease. H. Mai.—p. 12.
Psychopathic Child in Light of Psychology of Primitive Peoples. H. Waller.—p. 17.
School Endemic of Erythema Nodosum. W. Göbel.—p. 30.
*Combination Therapy of Anemia in Children. G. Hantschmann.—p. 51.
Micromethod of Müller's Conglobation Reaction. V. Niederwieser.—p. 67.
Experimental Studies on Mucous Membrane Diphtheria of Animals: Specific Action of Diphtheria Serum in Bacillary Infection of Animals. F. von Bormann and O. Scheurer.—p. 73.
Disturbances in Phosphate Metabolism in Rickets. W. Heymann.—p. 92.
*Pathogenesis of Diarrhea in Nurslings. H. Langer and I. Pipirs.—p. 101.
Serologic Investigations in Whooping Cough. W. Keller, A. Klopstock and Elisabeth Klopstock.—p. 112.
Postvaccinal Myelitis Six Months After Acute Anterior Poliomyelitis. T. Brehme.—p. 123.
Treatment of Whooping Cough with Bromine. W. Belmonte.—p. 134.

Splenectomy in Gaucher's Disease.—Ullrich shows that in patients with Gaucher's disease (familial splenic anemia) splenectomy has its advantages and its disadvantages. He reports a case in which splenectomy averted the acute danger to the child from severe anemia and hemorrhagic diathesis and improved the general condition. But soon after the operation, skeletal changes of a progressive, destructive character became manifest. Although roentgenoscopy before the splenectomy did not show involvement of the skeletal system, it is possible that the bone marrow was already involved and, if a disturbance in the lipoid metabolism is the principal factor in Gaucher's disease, it becomes understandable that following extirpation of the main organ of storage, the spleen, the bone processes should become more progressive. The author concludes that since splenectomy does not influence the metabolic disturbance, which is the underlying cause of the disease, the diagnosis Gaucher's disease does not justify the intervention. The danger of diverting the storage into the skeletal system militates against splenectomy, unless the patient's life is in acute danger from severe anemia or hemorrhagic diathesis, or a huge splenic tumor makes life extremely difficult. Only in such cases will the prospects of a successful operation counterbalance the risk of osseous manifestations.

Combination Therapy of Anemia.—It is demonstrated by Hantschmann that in the university children's clinic in Königsberg the treatment of anemic children has been more successful in the last three years than was the case in the preceding years. He ascribes this to the use of a combination therapy. The milder cases were treated with iron and liver, and in severe cases blood transfusions were added. This combination therapy hastened recovery and improved the final results of the treatment. The author thinks that iron is best in the form of reduced iron and that liver should be given in the form of powder or extract. Hemotherapy is most advantageous in intravasal administration. Case reports show that the combination therapy was successfully employed in children with alimentary anemia, postinfectious anemia, Jacksch-Hayem's anemia, secondary anemia, and anemia of premature infants and of children with rickets. The author resorted to the combination therapy also in other disorders of the hematopoietic system. In lymphatic leukemia, aleukemia and myeloid leukemia, the combined application of iron, liver and blood transfusion failed, in that the improvement was only of short duration, but in a child with lymphogranulomatosis the combined application of iron and liver increased the hemoglobin content and the number of the erythrocytes, so that radiation therapy could be commenced. Of two cases of hemorrhagic purpura, one yielded to repeated blood transfusions and the other one to combined iron and liver therapy.

Diarrhea in Nurslings.—According to Langer and Pipirs, food remains in the stomach, to be separated into its constituents. The defective separation of a milk food is the essential factor in the pathogenesis of diarrhea in nurslings, for it supplies the small intestine with a chyme that furthers the growth of a pathologic flora. If the defective separation is combined with a prolongation of the retention of the food in the stomach, which is the case in a food with a high fat content, stagnation of the entire gastric contents is the result, and this prepares the way for bacterial disintegration in the stomach. Promotion of the separation of the gastric contents should therefore be the aim of the antidyspeptic diets. The separation of the gastric content is promoted by the addition of sugar to the milk, whereas the addition of fat retards the separation and with it the evacuation of the stomach.

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Physiology and Pathology of Metabolism of Ketone Bodies. C. Brentano.—p. 237.
*Sato's Peroxidase Reaction of Myeloic Leukocytes and Their Significance for Neurology. W. Mascher.—p. 293.
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Behavior of Diabetic Patient in Galactose Assimilation. L. Pollak and A. Selinger.—p. 321.
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Changes in Blood and Spinal Fluid in Renal Insufficiency. F. Reiche.—p. 352.
Evaluation of Exogenic Creatinuria Following Intravenous Creatine Tolerance Tests. W. Wolff.—p. 370.
*Chyluria. H. Lucke.—p. 379.
*Rare Distant Complications in Gonorrhea. K. Damblé.—p. 388.
Sedimentation Reaction in Hypertension. H. B. Kirkland.—p. 398.
Paroxysmal Ventricular Tachycardia. L. Strauss and F. Becker.—p. 406.
*Significance of Hemorrhagic Diatheses in Occult Carcinomas. W. Beiglböck.—p. 411.
Allergy Toward Alcaligenes Abortus and Serum Phenomena in Human Subjects. G. Straube.—p. 420.
Jejuno-Ileac Diverticula. O. Merkelbach.—p. 426.

Peroxidase Reaction of Myeloic Leukocytes.—Mascher calls attention to Sato's method of peroxidase demonstration in the leukocytes and to the phenomenon discovered by means of it; namely, a disappearance of the peroxidases of the leukocytes in neurologic disorders. Because Sato first thought processes in the corpus striatum responsible for this phenomenon, he referred to it as the "striatal blood syndrome." The author found that Sato's peroxidase reaction is superior to the formerly employed methods. The technic is simple and it is helpful in differentiating myelogenic and nonmyelogenic cells. The large monocytes always prove to be peroxydase positive in this reaction. Staining with low concentrations of hydrogen dioxide and observation of the pathologic blood pictures make it appear probable that the peroxidase content of the different granules in the cells is not the same. Since a certain minimum of ferment is necessary to produce the reaction, staining with low concentrations of hydrogen dioxide is frequently not sufficient to demonstrate the granules. The same behavior is observable in the pathologic reduction of the peroxidases in the leukocytes. In both instances, the result is a more or less pronounced reduction in the number of granules. Only this reduction in number is pathologic, and a fluctuation in the intensity of staining of the demonstrated granules has no demonstrable pathologic significance. The reduction of the peroxidases in the leukocytes which is dependent on the pathologic granulation is to be differentiated from the manifestations resembling the striatal blood syndrome. The author thinks that Sato's theory, that the striatal syndrome is caused by a focal lesion on the floor of the third ventricle, is not definitely established, for in tests on forty patients with chronic encephalitis, the typical striatal blood syndrome was not observed. In one patient there was a noticeable reduction in the peroxidase content of the myeloid leukocytes, and this could perhaps be considered as a phenomenon resembling the striatal blood syndrome.

Chyluria.—It is pointed out by Lucke that the etiology of tropical, parasitic chyluria is understood, because, owing to the anatomic impairment of the lymphatic system by the parasites, there develops a direct communication between the lymph vessels and the urinary tract. In nonparasitic chyluria, however, the pathogenesis is not so clearly understood. In the reported case the chylous urine was secreted bilaterally. The specific gravity of the urine indicated that not all constituents of the lymph were present in the urine, and it seems likely that the transfer took place in the kidney, as the unchanged lymph should have appeared in the urine in case of a direct communication between lymph channels and descending urinary passages. The author points out that the kidney itself contains lymph vessels and that the glomeruli contain lymph capillaries. However, it is unlikely that some constituents of the urine find their way directly from them to the descending urinary passages. It

appears more probable that the glomeruli pass the unchanged lymph and that certain constituents are reabsorbed in the tubules. A connection between a disturbance in the region of the glomeruli and the chyluria seems the more probable, since a functional disturbance of the kidney concurred with the chyluria and subsided simultaneously with it. By means of a fat-free diet the chyluria could be reduced to a minimum. The author does not wish to base etiologic generalizations on the study of one case, and he is inclined to believe that chyluria may be produced by various causes.

Distant Complications in Gonorrhea.—Damblé reports one case of gonorrheal sepsis with severe ulcerous endocarditis, swelling of the liver and spleen and acute diffuse glomerular nephritis. It was not possible to obtain cultures of gonococci fourteen hours after death, but they were demonstrable in the histologic preparation of the aortic valves. The second case history concerns a patient who developed meningitis following a gonorrheal reinfection. The urethral secretion contained numerous gonococci and there was a gonorrheal epididymitis on the left side. Lumbar puncture revealed a considerable increase in pressure, a marked increase in the number of cells, positive protein reactions and a negative Wassermann reaction. In spite of several examinations it was not possible to demonstrate the gonococcus or any other form of coccus in the cerebrospinal fluid. All cultures remained sterile. Antigonorrheal treatment and two spinal punctures led to recovery.

Hemorrhagic Diatheses and Carcinoma.—Beiglböck gives the histories of two patients who presented the clinical aspects of hemorrhagic diathesis, and in whom the necropsy revealed a carcinoma. The reported cases have in common the advanced age of the patients and arteriosclerotic changes, but there are also factors in which they differ. In the first patient the vessels were impaired by the carcinoma and by inflammatory processes (appendicitis, pneumonia), and this may have led to the cutaneous hemorrhages, without severe changes in the blood. In the second case, however, changes in the blood, which in turn must be traced to extensive carcinomatous metastatization in the bone marrow, were the essential factor in the pathogenesis of the hemorrhagic diathesis. The thrombopenia, detected at the first examination, increased rapidly. The author found that reports of carcinoma without metastases of the bone marrow and with hemorrhagic diathesis are rare, but that the concurrence of metastases of the bone marrow with thrombopenia and with hemorrhagic diathesis has been reported more often. He considers it advisable to search for a carcinoma whenever older patients have a hemorrhagic diathesis of unknown origin.

Zentralblatt für Chirurgie, Leipzig

60: 1217-1264 (May 27) 1933

Treatment of Difficult Bimalleolar Fracture Dislocations. H. Matti.—p. 1218.
Observations in Case of Osteochondritis of Shoulder. J. Marian.—p. 1222.
Operating in Epinephrine Anemia. M. Krabbel.—p. 1225.
*Prevention of Gas Gangrene. L. Böhler.—p. 1227.
Sympathectomy for Painful Stump. K. Reschke.—p. 1230.
Ileus in Profuse Abdominal Bleeding. R. Hubrich.—p. 1231.

Prevention of Gas Gangrene.—Among 20,000 open traumatic wounds treated by Böhler in the past seven years, there were 253 compound fractures of the long bones and more than 100 open tears of the large joints. Only one patient in this group died of gas gangrene, though gas gangrene serum was regularly omitted in the treatment. The one fatal outcome was in a patient with tearing and soiling of the calf muscles. The popliteal artery did not pulsate. In his experience, absence of the popliteal pulse in the presence of an extensive injury to the soft parts always resulted in moist gangrene. It is obvious that the use of prophylactic serum in these cases is of no avail, since the part deprived of circulation must die. The author was frequently able to demonstrate the presence of gas gangrene bacteria in wounds by the culture method without, however, the subsequent development of clinical symptoms of gangrene. Gangrene develops principally as the result of interference with the blood supply of a part. An immediate amputation of the lower extremity is indicated when, following an extensive injury to soft parts, the peripheral pulse cannot be palpated and the toes are pale and cold. When the blood supply is adequate, a careful excision of the traumatized tissues is indicated. Since this operation occupies from one to three hours, general anesthesia is never resorted to. After the excision, the leg is immobilized in a fenestrated plaster cast. The author considers the use of strong antiseptics injurious to the tissues and likewise objects to leaving foreign bodies in the wound. Only the most necessary ligations of arteries are performed and suture of bones or of soft parts is omitted. The author concludes that his experience in treating 20,000 patients with open traumatic wounds without the gas gangrene serum indicates the importance of the surgical rather than the serologic prophylaxis.

Klinicheskaya Meditsina, Moscow

10: 847-974 (No. 19-22) 1933. Partial Index

Ten Years of Chair of Social Hygiene. N. A. Semashko.—p. 850.
Problem of Functional Regulation of Organism. A. A. Bogomolets.—p. 853.
Incipient Signs of Chronic Rheumatism. M. P. Korchlovskiy.—p. 858.
Vaccination Against Tuberculosis. V. A. Lyubarskiy and A. F. Korzhinskaya.—p. 892.
Experimental Cancer of Gallbladder and Liver. N. N. Petrov and N. A. Krotkina.—p. 914.
*Benign Tumors of Stomach and Their Roentgenologic Diagnosis. S. A. Reinberg and E. F. Rotermel.—p. 926.
Problem of Continued Fever. M. F. Ryabov.—p. 946.
Preliminary Irradiation of Kidney in Order to Diminish Bleeding in Nephrotomy. A. M. Gagman.—p. 960.
Arterial Hypertonus and Working Capacity. P. N. Nikolaev.—p. 963.

Benign Tumors of Stomach.—From a study of eighteen cases of benign tumor of the stomach, Reinberg and Rotermel make the following deductions: 1. Roentgen studies make it possible to diagnose benign gastric tumors. 2. The clinical course of these tumors is variable. 3. Acute hemorrhages leading to high grade secondary anemia or simulating pernicious anemia are rather frequent manifestations. Every patient suffering from an anemia of unknown cause should be submitted to a roentgenologic study of the gastro-intestinal tract. 4. Benign tumors situated in the pyloric portion may cause an acute obstruction or a chronic intermittent obstruction. Pedunculated tumors not infrequently prolapse into the duodenum. 5. These tumors must be regarded as precancerous conditions, since their malignant transformation is quite common. 6. The authors recommend surgical removal of the tumors even though they cause no symptoms. They point out that roentgenologically diagnosed benign tumors of the stomach may not be palpable at the time of operation through the wall of the stomach and may therefore be overlooked unless inspection of the interior is undertaken through a gastrostomy incision.

Nordisk Medicinsk Tidskrift, Stockholm

5: 645-675 (May 27) 1933

New Problems in Physical Therapy. H. Jansen.—p. 645.
*Barbituism, New Narcomania. G. Rylander.—p. 647.
Allergic Complications in Treatment of Diabetes with Insulin. E. Jorpes.—p. 654.

Barbituism.—Rylander reviews the literature and states that poisoning due to the intake of barbituric acid derivatives as soporific substances has become prevalent in Sweden in recent years. The author adds, however, that many cases were falsely diagnosed in the past and that the treatment of addiction to drugs in general concerns a psychiatrist or neurologist more than an internist. Barbituism is often mistaken for dementia paralytica; many patients taking small amounts of the derivatives daily for a long period of time are gradually poisoned and develop these paralytic symptoms. Some authors speak of a pseudo-encephalitic type and a pseudocerebral type of barbituism. Several French authors found that small doses of barbital administered gradually in animals cause excitation, motor disturbances and spasms. The smallest lethal dose of barbital is 0.65 Gm.; the average fatal dose, 3.25 Gm. Addicts are in the majority persons with psychopathic tendencies. The characteristic symptoms of barbituism are stupor, coma, amnesia, incoordination, inability to concentrate, impaired speech and general lethargy. In more serious cases, some of the symptoms are deep coma, cyanosis, facial paralysis, incontinence of urine and feces, and low blood pressure. Diagnosis, which is often difficult, is sometimes made by the discovery of barbituric acid derivatives in the urine or stomach contents. The author presents six cases of gradual poisoning due to the constant intake of barbital, bromural and phenobarbital. The majority of the patients were high strung and emotional and improved with psychiatric treatment. The author concludes that barbituism is a true toxicomania.